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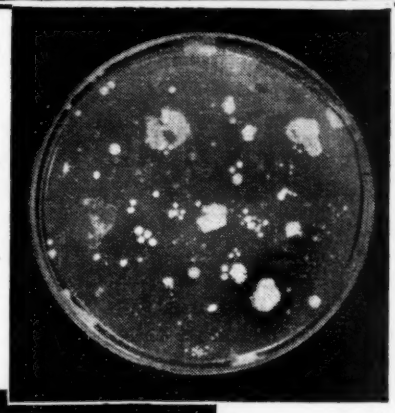

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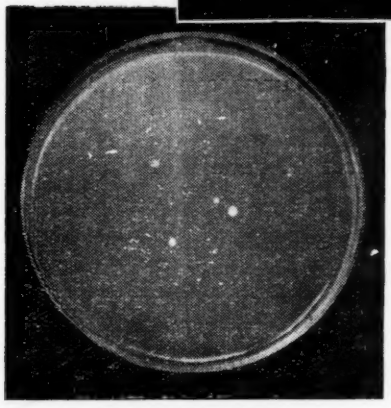

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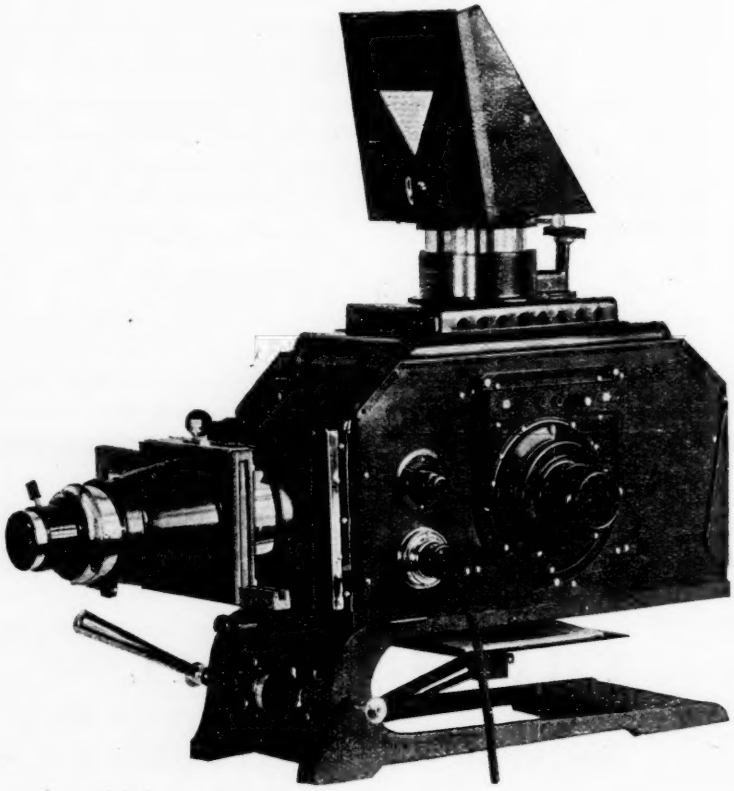

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The Chemistry of the Blood in Cirrhosis of the Liver *

M. V. RADHAKRISHNA RAO, M.B., B.S.

(*The Departments of Pathology and Biochemistry, Medical College, Vizagapatam*).

The material in this paper was collected during my investigation into 'cirrhosis of the liver' in Vizagapatam. The results of the biochemical examination of the blood in some typical cases of cirrhosis of the liver, investigated in the Medical Wards of the King George Hospital, Vizagapatam, are recorded in the table appended at the end.

An explanation of the tests employed, the methods, and the normal standards in the blood analysis were given in a previous communication (RADHAKRISHNA RAO, 1932).

RESULTS

Out of the 41 cases in which the *fasting blood-sugar* was estimated, 38 cases showed a reading below the normal level, taking 117.0 mg. per cent. as the average fasting blood-sugar of Indians (BHATIA 1927). In 8 cases definite hypoglycaemia was present, by regarding any figure below 60 mg. per cent. as abnormally low (DE WESSELOW, 1924).

The *urea* content of the blood estimated in 36 patients showed that it was within normal limits in 16 patients, while it was above the highest limit of the normal in 15 patients. In 5, it was below the lower limit of the normal. In one case (S. No. 37), the urea content of the blood was as low as 9.0 mg. per cent., while in another (S. No. 44) it was 12.0 mg. per cent.

The *non-protein nitrogen* of the blood was within normal limits in 29 out of the 33 cases, in which it was estimated, while in 4 cases it was slightly higher than the normal.

The *creatinin* of the blood was within normal limits in 7, and slightly higher than normal in 5, out of the 12 cases in which it was estimated.

The *cholesterol* content of the plasma was estimated in 20 cases. It was within normal limits in 6 cases, while in 13 cases it was below normal. Five cases showed a very low cholesterol content (less than 50.0 mg. per cent). In one case (S. No. 44) of syphilitic cirrhosis of the liver in a child, the plasma cholesterol was found to be very high. This case is of interest, as it is rare to find hypercholesterolæmia associated with cirrhosis of the liver.

S. No. 44 (Case No. 39)

History : R. S., a Hindu male child, aged 3 years and 4 months, was admitted into the children's ward of the King George Hospital, Vizagapatam, on 21-11-1931, for enlargement in the upper part of the abdomen said to be of two months' duration. The parents of the child were unable to state the time of onset of the enlargement but ever since they observed (i. e., about two months prior to admission), it was gradually increasing in size. The child gradually lost weight, appetite was impaired and bowels were constipated.

The patient was the third child in the family. The second child died of diarrhœa at the age of two years. Both the parents appeared healthy and gave no history of previous venereal infection.

* Part of the thesis on "Cirrhosis of the liver in Vizagapatam" submitted to the Andhra University in May 1933.

The child was still getting breast milk. Cow's milk or patent foods were never given. He was given small quantities of rice from the end of first year and later on his diet consisted of rice, dhal, vegetables, buttermilk and occasionally meat.

Physical examination : The child was poorly nourished, the visible mucous membranes were not anæmic and not jaundiced. There was no œdema of any part of the body. There was slight bossing of the head. Both the fontanelles were closed. The posterior cervical, the inguinal and the epitrochlear glands were slightly enlarged and palpable. The epiphyseal ends of the bones showed no enlargementt. The skin over the body was smooth and elastic. Teeth were well erupted and good. Tongue was clean, red and moist. Throat was normal.

The chest was symmetrical and normal in shape. The circulatory, respiratory and the nervous systems were normal,

The upper part of the right side of the abdomen was prominent and a few fine veins were seen in this region, extending to the sides of the thorax. The liver was markedly enlarged and the lower edge, which was sharp and very hard, extended very nearly to the Poupart's ligament: the lower edge was 6¼" below right nipple (in the nipple line) and 5" below the xiphisternum in the middle line. The surface of the liver was not tender, but hard and finely granular. The spleen was palpable to a finger's breadth below the costal margin and soft. There was no fluid in the abdomen.

Laboratory Findings:

(a) *Blood.* Heamoglobin, 70 per-cent.
Total red cells, 4. 8 millions per c. mm.
Total white cells, 28,750 per c. mm.
Differential count :

Polymorphonuclear neutrophils	35 p.c.
Lymphocytes	35 ,,
Eosinophils	25 ,,
Monocytes	4 ,,
Mast cells	1 ,,

The blood smear showed slight anisocytosis and poikilocytosis and marked increase of blood-platelets. No nucleated red cells or malarial parasites were seen. There was marked leucocytosis with increase of eosinophils Careful examination for foam cells (Neimann-pick's) was negative.

The coagulation time was 6 minutes and 8 seconds. The haemolysis of the red cells (fragility) began in C. 4 percent saline and completed in 0.25 percent saline. The Van den Bergh's reaction was indirect positive (faint). The halometer reading of the blood-film was 4.3.

The Wasserman ractions of the blood of the child and its father were strongly positive (+ +), while that of the mother was moderately positive (+). The blood serum was tested for its agglutination with dysentery organisms and was found negative.

The Widal's hæmoclasic crisis showed that the liver function was markedly impaired.

W. B. C. count before giving milk	28,750 per c. mm
W. B. C. count 20 minutes after giving milk.	20,625 ,, ,,
W. B. C. count 40 minutes after giving milk.	28,125 ,, ,,
Fall of W. B. C. count	8125.

Biochemical examination of blood :

Urea	12. 0 mg. per 100 c. c. of blood.
Non-protein nitrogen	28. 8 ,, ,, ,,
(Fasting) sugar	61. 5 ,, ,, ,,
Plasma cholesterol	689.6 mg. per 100 c. c. of plasma.
Inorganic phosphate content of plasma,	2. 76 mg. per 100 c. c.

The blood serum was very milky.

(b) *Urine* : was pale, clear, acid in reaction and had a specific gravity of 1015. Indican and a trace of albumin were present. No bile salts, bile pigments, urobilin, urobilinogen, sugar, acetone, phosphates or urates were present. Microscopic examination of the urine showed no cells, casts or crystals.

A trace of cholesterol (0. 857 per cent) was present in the 24 hours' sample of urine.

(c) *Motions :* were solid, brownish-yellow in colour, and contained no blood or mucus. Microscopically, no ova of helminths were seen but contained plenty of vegetable cells. No amœbic cysts or Charcot-Leyden crystals were seen.

The biochemical examination for the fat content of the fæces gave the following results:—

Total fat	10.80	gms. per 100 gms. by weight of dried fæces.
"Unsoaped" fat	5.20	,, ,,
Free fatty acids	1.66	,, ,,
Neutral fat	3.54	,, ,,
Combined fatty acids	5.60	,, ,,

(d) *X-ray examination* : The radiograph of the chest was normal ; no areas of rarefaction or deposits were seen in the ribs. The lower ends of both the femora were normal on radiographic examination and showed no wedge shaped deposits as seen in Gaucher's disease. The epiphyseal lines of the long bones were normal and showed no changes characteristic of rickets or syphilis either in the epiphyseal lines or in the shafts.

(e) *Examination of the eyes* : The vision was normal. The fundi were normal and the media clear. No cherry-red spot was seen at the macula.

Progress and Treatment.

The child had an irregular temperature ranging between 99° 0 F and 101. 0 F for about twenty days after admission, and it remained normal afterwards. The child was treated with Pot. iodide and Liq. Hydrarg. perchlor, internally and intramuscular injections of mercury cream. Cod-liver oil was also administered to improve his general condition.

The patient was discharged on 21-11-1931 (after a period of nearly two months) at the request of the parents. The patient showed no improvement at all and the liver showed no diminution in size.

Comment on the case

The interest in the present case lies in the association of cirrhosis of the liver and hypercholesterolæmia. The case cannot be regarded as one of hypertrophic biliary cirrhosis, in the absence of jaundice. The increased cholesterol content of the blood must be due to some disturbance of metabolism. In Gaucher's disease, which is also fundamentally a disturbance of metabolism, the spleen is much bigger, the cholesterol content of the blood does not appear to be increased, there is marked tendency for hæmorrhages and there is leucopenia and thrombocytopenia, Moreover, the X-ray findings in the bones, especially in the femora, are very typical. In the absence of all these findings the present case cannot be included under Gaucher's disease. Neimann-pick's disease occurs generally in still younger children and the

cherry-red spots at the maculae are said to be typical of the disease.

The work of ANITSCHKOW (1913) has shown that the spleen is undoubtedly connected with the cholesterol metabolism. The enlargement of the spleen in cases of Gaucher's disease, in lipæmia due to diabetes and in splenomegaly of the Neimann type is due to a hyperplasia of cells derived from the reticulo-endothelial system. As the enlargement of the spleen is only slight in this case, the hypercholesterolæmia cannot be attributed to it.

In the absence of other definite evidence the hypercholesterolæmia has to be attributed to a disturbance of metabolism secondary to the cirrhosis of the liver which is probably due to syphilis. In cases of cirrhosis of the liver, the cholesterol content of the blood is generally within normal limits, if not lower. The present case is of interest in that the high cholesterol content appears to be probably due to the cirrhosis of the liver.

The *uric acid* was high (6.016 mg. per cent.) in one case (S. No. 11) of portal cirrhosis in which the diagnosis was verified post-mortem.

COMMENT

(*a*) *Blood-Sugar:* Apart from the action of the hormones of the endocrine glands—especially insulin and adrenalin, the liver is also concerned in the maintenance of a constant blood-sugar level (FISCHLER, 1925). The experiments of BOCK and HOFFMANN (1874), MINKOWSKI (1886), and MANN and MAGATH (1922) have definitely shown that the liver is the sole source of blood-sugar as they found hypoglycæmia in the experimental animals after the removal of the liver. Elaborate work on this subject was done by MANN and his co-workers in the Division of Experimental Surgery and Pathology of the Mayo Foundation. These workers showed that, after removal of the liver in dogs, the sugar content of the blood gradually decreased, and when the blood-sugar level reached 0.04 per cent, symptoms similar to that of hypoglycæmia from insulin (e.g., great weakness, muscular twitchings, generalized convulsions, coma, etc.) appeared; death ensued if these symptoms were allowed to persist. All these symptoms were relieved and the animal became normal again after the intravenous injection of dextrose; by repeated injections it could be kept alive for nearly forty-six hours, at the end of which it developed a second group of symptoms, became comatose and died. Thus, it will be seen that 'the well-being of an organism is definitely influenced by the presence of a certain quantity of glucose in the blood, and that when this quantity diminishes the organism is seriously affected' (MAYO, 1930); with the removal of the liver the chief mechanism regulating the blood-sugar content is lost (DE WESSELOW, 1924 *a*).

Though the muscles are also capable of manufacturing glycogen from injected glucose in dehepatized dogs, yet, the muscle glycogen cannot be re-converted into blood-sugar. Moreover, the liver can manufacture glycogen from protein, carbohydrates and fats, while the muscles can make the glycogen from carbohydrates only (BOLLMAN, MANN and MAGATH, 1925 *a*; MAYO, 1930).

'It would appear from these data that the sugar of the blood is made exclusively by the liver..... There is indeed evidence that the liver is the sole source of sugar for the blood, since after the removal of the liver it is impossible to raise the animal's blood-sugar by any means, except by injecting sugar' (MAYO, 1930). Moreover asphyxia, and injection of epinephrine which in a normal dog invariably increase the blood-sugar level, do not produce hyperglycæmia in a de-hepatized animal and there is not even a delay in the fall of the blood-sugar (MANN and MAGATH, 1924; MAYO, 1930). This fact definitely points to the liver being the only source of sugar for the blood.

As DE WESSELOW (1924 *a*) remarks, this form of hypoglycæmia is of very little interest to the clinician, as it is rarely seen in hepatic diseases in man.

Clinically as there is no condition in which the liver is completely put out of action, the effect of hepatic disease on the blood-sugar level can be gauged to a certain extent from the results obtained in partial hepatectomies in experimental animals. MANN and BOLLMAN (1926) state that 'the carbo-hydrate metabolism of animals with greatly reduced amounts of hepatic tissue, so far as tests of hepatic function are an indication, is also maintained at an approximately normal level, and only slight differences from the normal may be found in the amount of sugar in the blood. The use of glucose or lævulose tolerance tests also fails to bring out any marked deviation of these animals from normal.' But ALTHAUSEN and THOENES (1932) showed that in chronic phosphorus poisoning in rabbits, low blood-sugar and low glycogen con-

tent of the liver were noticed very early and they remained low until death.

Several cases of hypoglycæmia associated with hepatic diseases have been reported. Thus cases of primary carcinoma of the liver (CRAWFORD 1931 ; NADLER and WOLFER, 1929), hepatic tumour (PARNASS and WAGNER, 1929), acute yellow atrophy of the liver (RABINOVITCH, 1929), phosphorus and chloroform poisoning (BODANSKY, 1923 ; MAC INTOSH, 1927 ; McLEAN *et al*, 1929) and cyclical vomiting (CAMMIDGE, 1928, 1930; MARANON, 1930), were associated with hypoglycæmia. A critical review of hypoglycæmia has recently been given by WAUCHOPE (1933), who remarks that 'besides the effects of gross destruction of the liver, it has been observed that mild chronic hypoglycæmia is often associated with hepatic defects, both in children and adults.'

GREENE, McVICAR, SNELL and ROWNTREE (1927) studying the value of certain tests for hepatic function in cases of cirrhosis of the liver, reported that 'there was apparently no significant disturbance in the fasting blood-sugar level in any of the cases studied.' While discussing this subject with the Professor and the Assistant Professor of Biochemistry, Medical College, Vizagapatam (*cf.* NARAYANA MENON and NARAYANA RAO, 1932) they remarked that, in their wide experience, they found low fasting blood-sugar in all the cases of cirrhosis of the liver in Vizagapatam, examined in their laboratory. The results tabulated in this paper corroborate their statement. In interpreting these results, it should be remembered that in Indians the average fasting blood-sugar is higher than that obtained in people of the European countries (McCAY *et al.*, 1918 ; BRAHMACHARI and SEN, 1925 ; STOTT, 1927 ; BHATIA, 1927).

The marked features in all the cases of cirrhosis of the liver studied in this paper, were the marked wasting and the advanced stage of the disease. On account of these findings and the absence of any endocrine disturbance, the hypoglycæmia in these cases may be ascribed to a disturbance of the glycogen storage apparatus—the muscles and the liver. But, as the liver glycogen is the only source of blood-sugar (SIMPSON and MACLEOD, 1927), the hypoglycæmia seen in these cases has to be attributed to an impairment of the 'glycogenetic and glycogenolytic functions' of the liver. It may be stated here that there was relatively excess of carbohydrates in the diet of all these patients suffering from cirrhosis of the liver, studied in this paper, and hence the hypolgycæmia has to be attributed not only to a disturbance of the sugar mobilization function of the liver, but also to a deficiency in the storage of glycogen.

Though the blood-sugar was very low in some of the cases described in this paper, yet, symptoms of hypoglycæmia (*cf.* WAUCHOPE, 1933) were not seen in any of them. WAUCHOPE (1933) gives the following figures : The normal fasting blood-sugar is about 0.100 per cent ; symptoms of hypoglycæmia appear at about 0.080 per cent. ; they become severe at 0.050 or 0.045 per cent., and death may occur with the level in the neighbourhood of 0.025 per cent." The absence of the symptoms of hypoglycæmia even with the low blood-sugar content, in the present series of cases, is perhaps due to the gradual lowering of the blood-sugar level with the advancement of the disease, so that sufficient time was allowed for the system to adapt itself to the change in the sugar content of the blood. The glycogenic function of the liver and its mechanism in the regulation of the blood-sugar level are so vital in nature, that their failure is only seen, as in the present series of cases, in the advanced stage of hepatic disease.

(*b*) *Urea :* Urea, the chief end-product of nitrogenous metabolism in man, varies rather widely in health, depending on the nitrogenous content of the diet. A high nitrogenous diet, even in a healthy individual, tends to raise the blood-urea, while a diet deficient in nitrogen may lower it below the normal level. Thus, the urea content of the blood varies directly with the height of the nitrogenous metabolism. 'A blood-urea much below 20 mg. is to be regarded merely as the expression of a low nitrogenous metabolism and not as in any way indicative of disease' (DE WESSELOW, 1924 *b*). According to him, the blood-urea in healthy individuals lies between 20 and 40 mg. per 100 cc. of the blood.

The elaborate studies of BOLLMAN, MANN and MAGATH (1924) on the physiology of the liver, have shown that the formation of the urea ceases immediately after the liver is removed. Under these experimental conditions in dogs, there is a decrease in the urea content of the blood, tissues, and urine, with an increase in the amino-acid content of the blood and urine, after the removal of the liver. Further experimental evidence in dogs (BOLLMAN, MANN and MAGATH, 1926) has shown that the liver

is as essential to de-aminization, as it is to the subsequent urea formation. After the liver was removed (by the new technique to prevent collapse and immediate death). the occurrence of de-aminization could not be demonstrated in any of the cases. This was proved by the fact that amino-acids in the blood, urine and tissues were recovered in amounts approximately equal to the anticipated formation of urea, if the experimental animal had been normal. 'If amino-acids were injected into these animals the entire amount of amino-acid nitrogen was recovered unchanged in the blood, urine and tissues many hours after administration. In addition to this complete recovery of unchanged amino-acids, it was demonstrated that no urea is formed in the absence of the liver and that the ammonia formed following hepatectomy is not derived from amino-acids in the body in the absence of the liver' (Bollman, Mann and Magath,1926). Further, it was shown that, after the adminsitration of ammonia to dehepatized dogs, it was recovered in the urine and tissues as ammonium salts without its conversion to urea, as is normally found in healthy animals (Bollman and Mann, 1930).

All these experiments show that the liver is essential to the formation of urea. Though the formation of urea ceases after hepatectomy in experimental animals, the same feature is not seen clinically, even in the advanced stages of hepatic cirrhosis. This is perhaps due to the actively functioning hepatic tissue still left, even in the advanced cases, to maintain the de-aminizing function of the liver.

Rowntree, Marshall and Chesney (1914) and Greene, McVicar, Snell and Rowntree (1927) observed low blood-urea in some cases of portal cirrhosis ; in one of the cases of the latter observers, the blood-urea was 9.0 mg. per cent. Similar results were also observed in cases of biliary cirrhosis. In most of the cases of portal and biliary cirrhosis, the blood-urea values were within the lower limits of the normal. Greene, McVicar, Snell and Rowntree (1927) remark that 'in view of the accompanying nutritional disturbance in so many of these cases, it is doubtful whether much diagnostic importance can be attached to these changes in the nitrogen partition of the blood. Furthermore, the terminal rise of blood-urea observed in case 4 (in their series), is evidence that urea formation is by no means in complete abeyance. In consequence, we do not feel that the changes in the nitrogen partition of the blood with a reduction in the proportion of urea are of great diagnostic import in the individual case.'

The results of the blood-urea in cases of cirrhosis of the liver recorded in this paper, show a great variation. Though, in a few cases it was below the normal level, in most of the cases it was within, or higher than, the normal limits. This shows that the 'ureogenetic function' of the liver was still not deranged even in the advanced stage of the disease. The high urea content in some of the cases was due to other factors associated with the hepatic cirrhosis.

(*c*) *Non-protein nitrogen, creatinin and uric acid :*

Bollman, Mann and Magath (1926) showed that in de-hepatized dogs 'the formation of creatin and creatinin continued at its normal rate in the absence of the liver, so that it would seem that the liver is not concerned with this phase of nitrogenous metabolism.' They have further shown (Bollman, Mann and Magath, 1925 *b* ; 1926) that in the de-hepatized dog, the destruction of uric acid which is a marked feature in the normal animal, completely ceased, so that large amounts were found in the blood and urine.

Mann and Bollman (1926) investigating the value of the liver function tests in experimental animals (dogs) remark that the best test to determine the functional efficiency of the liver depends on its ability to destroy uric acid. After the administration of a standard high purin diet, the total amount of uric acid excreted in the urine during a standard period, was estimated and it was found that it served as a reliable index of the hepatic efficiency. Though it is a very delicate and the best test and indicates even the slightest damage of the liver in the dog, as Mann and Bollman (926) remark, 'whether or not such a test will be of value in man remains to be proved.'

The results of the non-protein nitrogen and creatinin in cases of cirrhosis of the liver recorded in this paper, show that they are either within the normal limits or slightly higher than the normal. The uric acid content of the blood was high in one case in which it was estimated.

(*d*) *Cholesterol :* The importance of the variations in the cholesterol content of the blood in cases of diseases of the liver and the biliary passages was greatly stressed by Chauffard and his collaborators (1911 and 1920). They found that the cholesterol content of the blood in cases

of cirrhosis of the liver, was within normal limits. Epstein (1932) obtained similar results and showed that variations occurred only in the terminal stages of the disease, when degeneration of the liver or hepatitis supervened. He pointed out that hypocholesterolæmia was found in all cases with parenchymatous degeneration of the liver. Rothschild and Rosenthal (1916) point out that the cholesterol content of the blood in cases of portal cirrhosis is below the normal.

The normal values (the average values and the limits of variation in males and females) of the total, free and ester cholesterol of the plasma were given by Gainsborough (1931).

In most of the cases of cirrhosis of the liver in the present series, the total cholesterol content of the plasma was below the normal limits. It is difficult to say whether the low cholesterol content of the plasma, seen in these patients, was due to the destruction of the hepatic parenchyma, or due to their diet, which was poor in cholesterol and fats.

Summary and Conclusions

The results of the biochemical examination of the blood in some typical cases of cirrhosis of the liver, investigated in the Medical Wards of the King George Hospital, Vizagapatam, are recorded in this paper. It is shown that :—

(1) *The fasting blood-sugar* was low in most of the cases. It is pointed out that the liver is also concerned in the regulation of the blood-sugar level and the low blood-sugar seen in these cases is probably due to an impairment of the 'glycogenetic and glycogenolytic functions' of the liver. Though the blood-sugar was very low (less than 60 mg. per cent.) in some of the cases, symptoms of hypoglycæmia were not seen in any of them.

(2) Though the *blood-urea* was low in a few cases, the 'ureogenetic function' of the liver was not deranged in most of them even in the advanced stage of the disease, as shown by the blood-urea content, which was within, or, higher than, the normal limits.

(3) The *non-protein nitrogen* and the *creatinin* were within normal limits or slightly higher than the normal level.

(4) The *plasma cholesterol* was low in most of the cases and it is pointed out that it is difficult to state whether it is due to the destruction of the hepatic parenchyma or due to the diet, which was poor in cholesterol and fats.

A case of hypercholesterolæmia, associated with syphilitic cirrhosis of the liver, is described.

This work was carried out under the direction of Rao Bahadur Dr. T. S. Tirumurti, Professor of Pathology, Medical College, Vizagapatam, to whom I am greatly indebted for his valuable guidance. I wish to acknowledge, most gratefully, the constant help and advice given to me by Dr. V. K. Narayana Menon, Professor of Bio-chemistry, and Dr. D. Narayana Rao, Assistant to the Professor of Biochemistry, throughout my work in their laboratory.

My thanks are also due to the Superintendent, King George Hospital, Vizagapatam, and to the members of the staff of the Medical Unit of the Hospital, for giving me every facility in the Hospital to carry out this investigation.

Table

Showing the Results of the Biochemical Analysis of the blood in 53 cases of Cirrhosis of the Liver
(The readings are given in mg. per cent.)

S. No.	Urea	Non-protein Nitrogen	Creatinin	Cholesterol (Plasma)	Sugar	Disease	
1	36.0	30.56	2.68	168.2	78.4	Portal Cirrhosis, ascites.	
2	26.0	20.65	2.64	168.6	89.7	,,	,,
†3	..	..	..	..	83.0	,,	,,
4	24.2	20.65	1.65	..	..	,,	,,
5	37.0	35.28	..	..	..	,,	,,
6	16.0	27.3	..	46.0	..	,,	,,
7	36.85	31.59	..	..	..	,,	,,
8	15.5	26.67	2.25	109.3	70.2	,,	,,
9	85.6	55.56	1.66	..	68.9	,,	,,

S. No.	Urea.	Non-protein Nitrogen.	Creatinin.	Cholesterol (Plasma)	Sugar.	Disease.	
10	41.0	29.55	..	43.6	..	,,	,,
*11	15.0	25.2	..	45.45	99.0	,,	,,
*12	97.0	46.14	1.579	48.57	..	,,	,,
13	24.5	26.07	..	84.74	79.7	,,	,,
14	55.0	40.53	..	193.2	78.5	,,	,,
15	28.0	30.0	..	101.6	126.6	,,	,,
16	39.0	36.36	..	..	72.4	,,	,,
17	62.25	32.64	..	..	95.2	,,	,,
18	54.5	32.61	2.564	46.3	88.9	,,	,,
*19	..	..	..	..	58.4	,,	,,
20	..	..	..	..	68.7	,,	,,
21	63.5	26.43	..	..	87.7	,,	,,
22	..	..	..	..	108.1	,,	,,
23	..	..	..	..	59.7	,,	,,
*24	47.6	27.39	..	..	42.3	,,	,,
*25	..	..	..	..	85.8	,,	,,
26	59.5	..	..	..	..	,,	,,
*27	..	..	..	..	95.7	,,	,,
28	30.63	..	..	..	..	,,	,,
29	..	..	..	..	81.3	,,	,,
30	..	..	..	..	119.0	,,	,,
31	..	..	..	..	54.1	,,	,,
32	..	..	..	..	54.2	,,	,,
*33	67.5	43.47	..	77.32	..	,,	,,
34	75.9	32.97	..	..	68.3	,,	No ascites.
35	22.16	24.69	..	152.0	..	,,	,,
36	26.2	20.64	1.86	142.0	86.2	Syphilitic cirrhosis, ascites.	
37	9.0	33.7	1.695	..	88.9	,,	,,
38	..	37.26	1.57	..	..	,,	,,
39	20.5	21.21	2.15	128.25	73.3	,,	,,
40	36.5	29.2	..	..	79.4	,,	,,
41	..	..	..	..	125.0	,,	,,
42	55.5	33.33	..	..	41.44	,,	,,
43	55.5	20.12	..	..	103.6	,,	,,
44	12.0	28.8	..	689.6	61.5	,,	No ascites.
45	70.0	32.61	..	..	83.3	,,	,,
46	..	..	..	66.9	..	,,	,,
47	..	..	..	..	62.7	,,	,,
48	23.0	27.9	..	..	40.6	Infantile biliary cirrhosis, ascites.	
49	..	..	..	..	69.0	,,	No ascites.
50	40.0	..	1.61	103.9	62.3	Hypertrophic biliary cirrhosis (non-obstructive), ascites.	
51	..	..	..	156.2	56.3	,,	No ascites.
52	41.0	..	..	..	74.1	,,	,,
53	35.14	25.98	..	177.8	86.2	,,	,,

* In these cases the clinical diagnosis was verified at post mortem examination.

† In this case the clinical diagnosis was verified at operation (Omentopexy was done).

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Studies on the Periodicity of Defective Function of Human System as Distributed in the Phasial Cycle of the Moon

Part II

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Experiment 5.

We know there are three channels by which the extra water of the blood of the vascular system is disposed of.

1. Kidney.
2. Skin.
3. Tissues.

As regards the kidneys they seem defective in function on those days. Skin certainly has some effect as shown by the relative humidity curve. But the *go* to the tissues was also considered. So haematocritic study of relative volume of corpuscles to plasma volume was made in subjects under identical conditions for a period of one month, i.e., a complete lunar cycle.

After 14 hours fasting and preliminary preparation, the systolic and diastolic B. P. (Baumanometric) were determined and a sample of blood taken for haemotocritic study and immediately after that he was given 500 cc. of water. Just at the lapse of an hour similar determination of B. P. and haematocritic study of blood were made.

(See Charts 6 and 7 and Figs. VIII and IX).

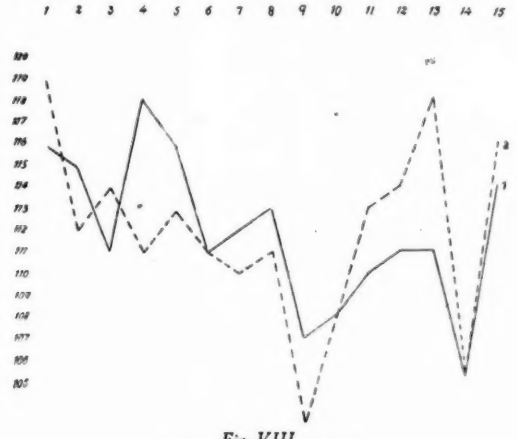

Fig. VIII.
Blood Presure Curve—Saidu
Curve (1) *Before taking* 500 *cc. water*
do (2) *After taking* 500 *cc. water.*

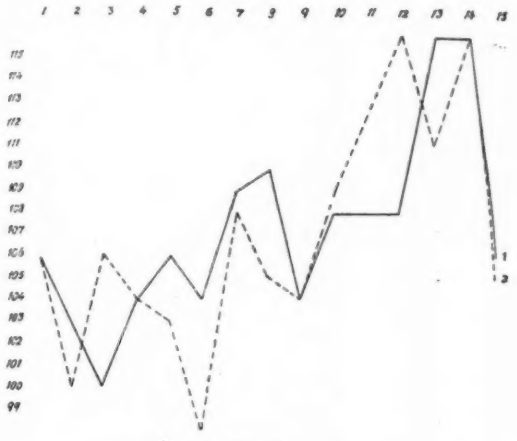

Fig. IX.
Blood Presure Curve—Saidu
Curve (1) *Before taking* 500 *cc. of water*
do (2) *After taking* 500 *cc. of water*

The study of these curves show beyond doubt the likeliness of the *go* of the water to the tissues on the said days, because the low urine output with diminished B. P. and a corresponding diminution of plasma volume in relation to corpuscles are sure signs of such occurrence. (See Figs. X, XI, XII and XIII).

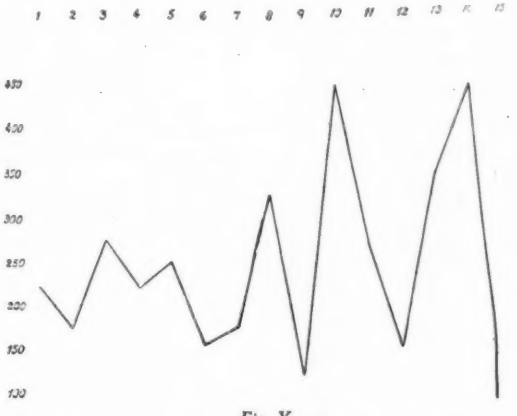

Fig. X.
One Hour Urine Curve—Saidu After 500 *cc. of water*

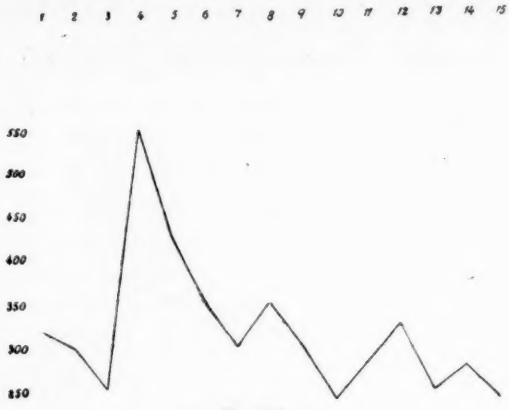

Fig. XI.
One Hour Urine Curve—Saidu After 500 cc. of water

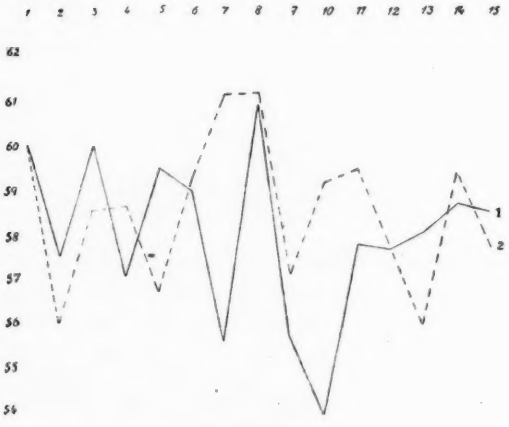

Fig. XII.
Plasma Curve—Saidu
Curve (1) 12.10.31—26.10.31. *Before taking* 500 *cc. water*
no (2) 12.10.31—26.10.31. *After taking* 500 *cc. water*

While considering the *go* of water to the tissues which will certainly diminish the relative volume of plasma as compared with corpuscles the likelihood of corpuscular swelling also should not be lost sight of. To establish this direct determination of corpuscular volume has also been undertaken in the next experiment.

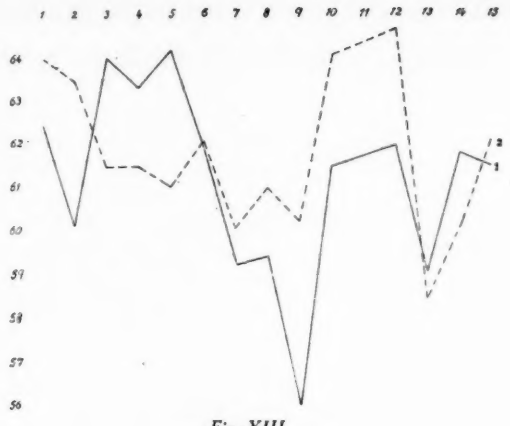

Fig. XIII.
Plasma Curve—Saidu
Curve (1) 28.9.31—11.10.31, *before taking* 500 *cc. water*
do (2) *do after taking* 500 *cc. water*

Experiment 6.

Direct determination of corpuscles volume was made also in one case with similar preliminary preparation except that no water was given in this case. (See Fig. XIV).

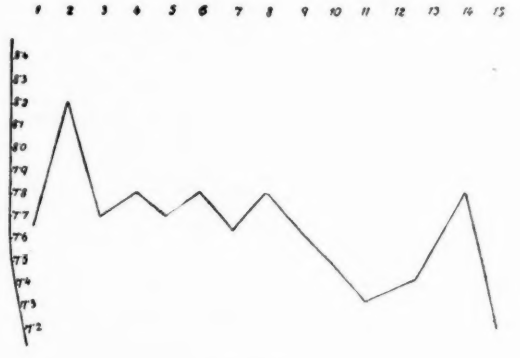

Fig XIV
Corpuscular Volume Curve

This also shows shrinking of corpuscles on days as found in the above case which also support the *go* of the fluids on these days to the tissues.

(*To be Continued*).

CHART 6.

SAIDU. *From* 28-9-31 to 11-10-31.

15 days following Full Moon day.	1	2	3	4	5	6	7	8	9	10	12	13	14	15
B. P. in mm. Hg. before taking 500 cc. of water	106	106	100	102	106	104	109	110	104	108	108	115	115	106
B. P. in mm. Hg. one hour after taking 500 cc. of water ..	106	100	106	102	103	99	108	105	104	109	115	111	115	105
Plasma % (By Haematocrit) before taking 500 c.c. of water ..	62.5	60.1	64.1	63.3	64.2	62.0	59.2	59.4	55.9	61.5	62.0	59.0	61.8	61.5
Plasma % (By Haematocrit) 1 hour after taking 500 cc. of water	64.0	63.5	61.5	61.5	61.0	62.1	60.05	61.0	60.2	64.1	64.8	58.2	60.03	62.2
Urine in cc. after 1 hour of taking 500 cc. of water	320	300	250	550	425	350	300	350	300	250	325	250	275	225
Difference of B. P.	0	–6	6	0	–3	–5	–1	–5	0	1	7	3	0	–1
Difference in Plasma % ..	1.5	3.4	–2.6	–1.8	–3.2	0.1	.85	1.6	4.3	2.6	2.8	–0.8	-0.77	0.7
CORPUSCLES	C	CC	SS	S	SS	C	C	C	CC	CC	CC	S	S	C

S—Indicates likeliness of corpuscular Swelling
C— „ „ „ crenation

CHART 7.

SAIDU. MALE—AGE 25. 12-10-31 *to* 26-10-31.

15 days following New Moon Day.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B. P. in m.m. Hg. before taking 500 cc. of water	116	115	111	118	116	111	112	113	107	108	110	111	111	106	114
B. P. in m.m. Hg. 1 hour after taking 500 cc. water	119	112	114	111	113	111	110	111	103	108	113	114	118	106	116
Plasma % (by Haematocrit) before taking 500 cc. of water	60.05	57.5	60.04	57.0	59.5	59.0	55.6	61.0	55.7	53.9	57.8	57.7	58.0	58.7	58.5
Plasma % (by Haematocrit) 1 hour after taking 500 cc. of water ..	60.02	56.0	58.60	58.7	56.7	59.2	61.3	61.8	57.1	59.2	59.5	61.0	58.0	59.4	57.
Urine in cc. after 1 hour of taking 500 c.c. of water	224	175	275	220	250	150	175	325	120	450	265	150	350	450	90
Difference of B. P. ..	3	–3	3	–7	–3	0	–2	–2	–4	0	3	3	7	0	2
Difference of Plasma % ..	–.03	–1.5	–1.44	1.7	–2.8	0.2	5.7	0.8	–0.6	5.3	1.7	3.3	–1.3	0.7	–0.8
Corpuscles	S	SS	S	C	SSS	C	CCC	C	S	CCC	C	CC	S	C	S

In these cases there is very little doubt :—
either (1) of about the swelling of the corpuscles
or (2) of the greater concentration of blood due to draining of fluid in the tissues.
or may be combination of both.

Observations on Erythrocyte Sedimentation with Special Reference to Leprosy

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and
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The sedimentation of erythocytes in citrated blood introduced by FAHRAEUS (1918) was originally used for following the course of pulmonary tuberculosis and as an index of its prognosis and treatment. Subsequently the test found an important place in rheumatism and leprosy, as an indication of the significance of the quiescent period in either condition, and as a gauge of the response to treatment. The working out of the principle and rationale underlying the rate of sedimentation of erythrocytes promised for the test a further field as a detective of any latent lytic process or tisue break-down in the system in any disease. At this stage enthusiasts having perfected and simplified the technique advocated the test as a routine in any condition probably as a test in importance second only to the routine urine or blood examination. The various terms used for the test such as "*Reaction Level*", "*Resistance Level*", "*Stability Reaction*", "*Suspension Stability*" throw light on the value what each protagonist attached to this test.

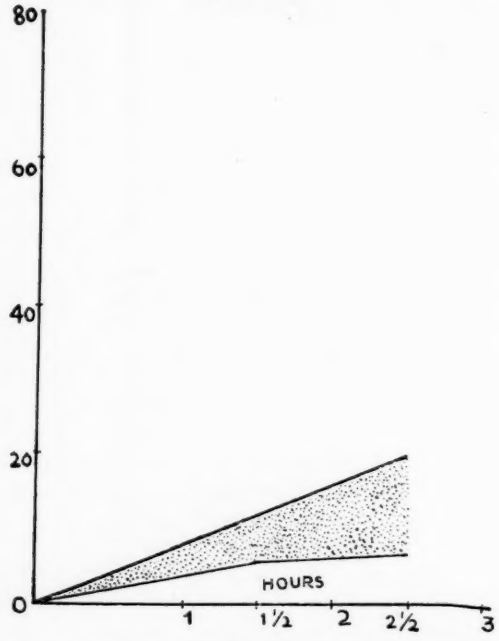
We have had the opportunity to study the sedimentation rate in a number of cases—(normal healthy students of the Medical College and pathological patients in the skin and leprosy clinics of the King George Hospital) and the following observations are made on a study of about 700 cases comprising both groups.

The technique adopted is that suggested by MUIR (1931); 0.3 cc. of a 5% solution of sodium citrate in distilled water is taken in a 2 cc. syringe and the vein is punctured and blood drawn upto 1.5 cc. The contents are well mixed and emptied into a clean dry test tube, well shaken again and drawn into a pipette of 1 c.c. capacity divided into 100 marks (of 3 mm. each). The pipette is fixed on to a test tube stand—the narrow lower end being stuck in plasticin. The height of the clear serum on the top is noted after intervals of 1½ hrs. and 2½ hrs. of drawing the blood. The average of the two readings gives the sedimentation index (S. I.). An obvious disadvantage when adopting this technique is the time of taking the readings, which were found to be far too delayed in pathological conditions though even this is an improvement over MUIR's original 2 and 3 hour readings. The rate of sedimentation in pathological cases was so rapid that the figure for the first reading i.e., after 1½ hours was nearly reached in an hour and the second was quite in the vicinity of the first. The 2½ hours readings robbed further the test of a good bit of its practicability. HASKINS & OSGOOD (1931) suggest that for rapidly sedimenting cases, the first reading is to be noted after 15 minutes and the second one in less than an hour. But most pathological bloods show a distinct lag in the first 15 minutes and a more uniform rate after half an hour. A much more rational technique to our mind is that of LINZMEIRS (quoted by Beaumont & Dodds) who noted the time of fall to a certain height, say 10 marks, though from the point of practicability, this is no improvement. The more the time to fall to a certain height the better is the prognosis according to this method.

The S. I. was first observed by us in a series of healthy College students. MUIR's technique was of value in these cases as the rate of sedimentation was sufficiently slow for 1½ and 2½ hours readings. The following graph includes the extremes in our series of over 100 cases. From the knowledge of the constitution and health of the individual the observation was insistent that the thin or wiry individuals showed as a rule a very low S. I. Their general health was very satisfactory and in a sense the S. I. was in inverse ratio to their health.

This study showed a few cases (about 23%) who were healthy with an index ranging from 30-25. The red cell count and haemoglobin were estimated

GRAPH I

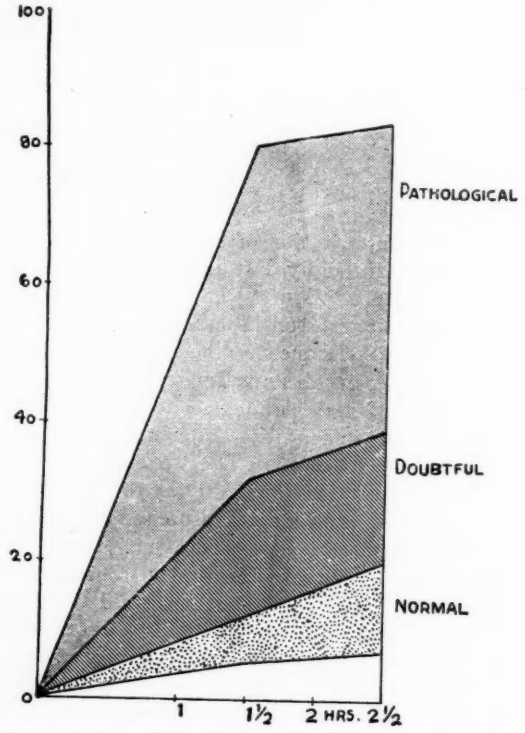


Showing the range of the rate of the sedimentation in normal cases.

to see if the rapidity was in anyway due to alteration in either of these factors. The patients were subjected to thorough clinical examination to see if any latent lytic process was at work. The plasma proteins were not estimated in this series. This observation seems to suggest that cases in this series that showed a high S. I. had once some ailment which had upset their blood chemistry with apparently no gross pathological condition at present to account, or that they are instances analogous to cases with high blood pressure figures, which are normal to them though abnormal from the point of the recognised standard.

We next studied the S. I. in pure cases of cutaneous and nerve leprosy. Other factors as to interfere with the S. I. were as far as possible excluded by a careful clinical examination. The following Graph indicates the S. I. in advanced cutaneous (C_2 & C_3) and nervous (N_2 & N_3) cases. The range was very wide and very high ones were those of C_2 or C_2—N_2 cases. About 10% of cases of nerve lesions (N_2) did not show any alteration in S. I.

GRAPH II

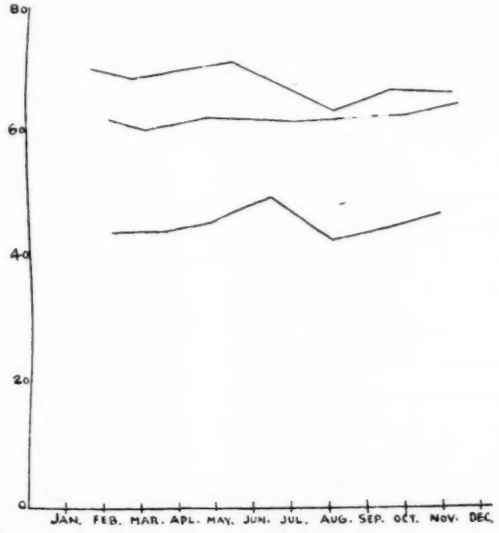


Showing the range from the normal to the pathological condition.

The next study was to observe if the S. I. was a true indication of the prognosis of a case that was being treated with preparations of *hydnocarpus* and other antileprotic measures. A case showing at first a low S. I. with ostensible lesions especially cutaneous, is expected after treatment to show an increase in S. I. indicating thereby that leproma-lytic processes are taking place due to the destruction and absorption of pathological tissues. Correspondingly a patient with obvious lesions and a high S. I. to start is supposed to have a low resistance due mostly to destruction of pathological tissues, and further tissue-breakdown is to be avoided by any active leproma-lytic measures. MUIR in these cases suggests administration of potassium antimony tartarate for bringing up the resistance level as indicated by S. I.

The following graph indicates the variation (rather the absence of it) in the S. I. in 65% cases that showed definite clinical improvement with antileprotic treatment extending over some months.

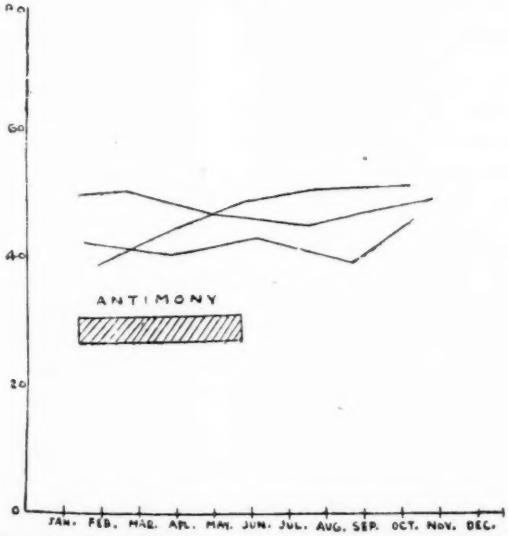
GRAPH III



Showing three typical cases that showed no fall in S. I. with appreciable clinical improvement.

A number of cases that showed a high S. I. to start were put on a course of preliminary potassium antimony tartarate treatment for raising

GRAPH IV



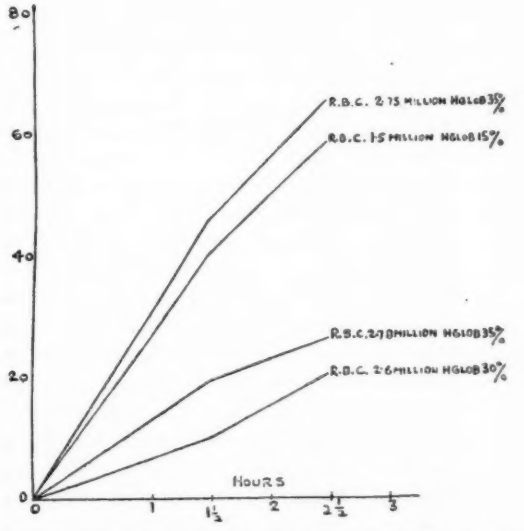
Showing response or resistance of S. I. to potassium antimony tartarate.

the resistance level as indicated by the lowering of S. I. 70% of the cases failed to show any reduction in S. I. after anitomony treatment tri-weekly for periods ranging from 1-3 months. The preceeding graph indicates treatment with antimony.

We next studied the response of leprosy cases to pot iodide. MUIR says that the rise in S. I., by over 10 after the administration of pot. iodide and the rapid return to the original level are the cases that respond well to treatment of leprosy. We studied the effect of iodide in a number of cases on the S. I. and in 60% of cases the rate went up by about 10. These cases did respond well to antileprotic measures. Those cases whose S. I. were unaffected by iodide also showed some response to antileprotic measures.

Leprologists of eminence have said that cases with high S. I. and with marked leprous lesions, should not be treated with hydnocarpus as the treatment tends to undermine further the reaction level. Potassium antimony tartarate has been tried with no appreciable effect in lowering the S. I. In another series we treated a number of cases (showing high S. I. and marked lesions both cutaneous and nervous) from the start with hydno-

GRAPH V



Showing the relation of S. I. to haemoglobin and red cells.

carpus. The improvement was steady and no untoward effect was noticed in the shape of violent reactions in any. The dosage to start with

was ½ cc. (equal parts of hydnocarpus oil and esters with 4% double distilled creosote bi-weekly)—raising to 5 or 6 cc. by fortnightly increase of ½ cc. Syphilitic infections were treated by weekly injection of arsenic.

Discussion

The rate of erythrocyte sedimentation has been admitted to be no test for any disease and is not diagnostic of any disease as it is increased in such varying conditions as tuberculosis, carcinoma, influenza, psychosis, toxaemia, kala-azar, rheumatism, leprosy etc. The value of S. I. in cases of chronic conditions like tuberculosis, leprosy and syphilis is in ascertaining any information over the clinical picture. If physical signs show arrested activity, the arrest is not to be considered permanent until the S. I. has returned to normal. Views are divided as to the reliability of S. I. for giving such information over and above the clinical.

The two most important factors involved in the sedimentation of R. B. C. are the number of red cells and the protein content of the plasma. Anaemia will increase the rate of S. I. as could be shown by diluting the blood with its own plasma, but the factor of R. B. C. seems to be much less fundamental than that of the plasma. Our study of 20 cases of anaemia with red cell count and haemoglobin index showed definitely that even the reduction of R. B. C. to half the normal increased the rate of sedimentation above the normal to a slight extent (graph 5). Rapid rate of sedimentation in cases of anaemia signifies plasma changes as well. Payne (1932) remarked "The rate of sedimentation in a suspension, such as red cells in blood, depends largely on the size of the particles involved as between mist and rain. Anything that causes the red cells to agglutinate and form large units increases the rate of sedimentation. Broadly speaking anything that allows the red cells to lose their electric charge will allow them to agglutinate". The plasma fibrinogen and to a less extent the plasma globulin tend to allow the red cells to discharge their electricity but the plasma albumin is said to act in an opposite manner. An increase in the fibrinogen or a decrease in the albumin and globulin ratio should therefore tend to increase the sedimentation rate. One or both of these changes are usually found in practice when the sedimentation rate is increased. It is probable that the site of these changes is the liver which is the sole source of fibrinogen.

Although it is said that there is a close relation between the clinical findings and the sedimentation rate in a variety of diseases such as rheumatism, tuberculosis, pneumonia,. acute infections etc., our findings as regards leprosy indicates no such absolute relationship.

Napier and Henderson (1931) when studying the S. I. in cases of kala-azar observed that in no disease was the S. I. so markedly accelerated as in kala-azar. In no instance did the S. I. in their cases of kala-azar return to normal during the period of observation. Even the clinically cured cases showed a high S. I. at the end of treatment. Our observations in cases of leprosy very much corresponded to theirs in kala-azar, thereby limiting the scope of S. I. as an aid to prognosis or as a gauge of treatment of leprosy. A number of cases showed a remarkably constant figure from the start (vide graph 3) in spite of very satisfactory clinical improvement. Two cases showed a slightly accelerated rate with clinical improvement. Antimony tartarate failed in most cases to bring down the rate of sedimentation. This suggests that the low resistance indicated by high S. I. is either "constitutional" or due probably to a permanent alteration in blood as a result of previous injury to one or more of the organs. In these circumstances one is not altogether unjustified in doubting the S. I. as a measure of resistance. With these anomalies together with the fact that only in a very few cases did the fall in S. I. keep pace with the clinical improvement, one is inevitably led to the conclusion that the test is unlikely to provide a criterion of any prognostic significance.

In the early stages of treatment, as observed already, the S. I. is bound to rise as the lepromalysis raises the fibrinogen or upsets the albumin globulin ratio or releases some other haemagglutinating protein products. Once the clinical improvement is firmly established, one should expect improvement in the reaction level or fall of S. I. Yet our observation indicates that it is not justifiable on the basis of the S. I. to conclude that the clinical improvement is deceptive or fallacious, It is more probable that the blood changes are so permanently affected that the protein composition of blood is permanently altered thereby giving a

high S. I. But clinically this alteration is not of much serious significance. An analogy is sought as mentioned already in the condition of hyperpiesis where the raised blood pressure though abnormal for the standard average, comes to be the normal for the individual.

When the reaction level is low as indicated by a high S. I., MUIR suggests a cautious treatment with hydnocarpus or to delay the treatment or to raise the level with tryalkalies or antimony tartarate.

Our observation in this clinic extending over six hundred cases of leprosy seems to indicate that the high S. I.,if unaccompanied by fever, does not contra-indicate the use of hydnocarpus upto even 5 cc. bi-weekly. The reaction level is not affected by antimony tartarate although alkalies tend to raise it a little. The triple sulphate mixture containing quinine, iron and magnesium sulphate seems to improve the general condition.

The reaction stage in leprosy cases under treatment seems to be associated with iodides. Hence if iodides are avoided, hydnocarpus is not contra-indicated even in cases with high S. I. Cases of leprosy that gave a strong positive Wassermann reaction were treated with weekly injections of arsenic and bi-weekly hydnocarpus. Arsenic and hydnocarpus even in C2-N2 cases very often did not show any acute reaction phase as indicated by fever, erythema, swellings, constitutional disorders etc., The course of recovery has always been smooth.

SUMMARY AND CONCLUSIONS

1. Sedimentation index of normal young adults is estimated.

2. About 23% showed variation from the normal in the healthy adult group.

3. The S. I. in cases of leprosy does not give a reliable indication as to the effect of treatment.

4. A persistently high S. I. in clinically improved cases is not of grave consequence.

5. The initial high S. I. is not controlled by preliminary antimony treatment.

6. Regulated treatment with hydnocarpus of cases with high S. I. is not fraught with any danger.

7. Rise and rapid return of S. I. with pot. iodide seems to be an indication of good prognosis.

Our thanks are due to the staff of the King George Hospitals for their valuable help and co-operation.

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Venereal Diseases in Relation to Public Health

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The subject is of primary importance now-a-days for the protection of communities at large by all possible prophylactic measures that can be adopted on the advice of the experts. Venereal diseases are commonly known in three chief forms : (1) syphilis. (2) gonorrhœa and (3) soft chancre as they are considered to be mainly transmitted in venery but are often contracted innocently. As to their relation to public health ROSENAU, in his book on Preventive Medicine, has rightly stated "As a danger to the public health, as a peril to the family and as menace to the vitality, health and physical progress of the race, the venereal diseases are justly regarded as the greatest of modern plagues, and the prophylaxis the most pressing problem of preventive medicine that confronts us in the present day."

In this connection it may be stated that the Indian Civilisation or the Aryan culture with high moral aptitude was leading the nation towards the highest longevity but unfortunately coming in contact with the Western Civilisation the influences of the venereal diseases are gradually bringing low vitality, ill health and a degenerated race. It is now desirable that the modern scientists and sanitarians, who are conversant with the ill effects of these fell diseases, should try their utmost to educate the public mind in an effective manner to avoid the influence of these diseases in all possible ways.

ROSENAU further stated, "No serious attempt was made by the sanitary authorities of our great cities to deal with this problem until New York city in 1912 determined to treat the venereal diseases as any other highly communicable and preventible infection dealing purely with sanitary features of the problem from a public health standpoint ignoring social and moral phases. The opposition to such activities is slowly being broken down. The progress against the venereal diseases is a repetition of the warfare along other lines of sanitation and hygiene. It is the history of a crusade carried on in the name of law, religion personal rights or expediency. Although the difficulties in these cases are much greater than in any other group of diseases and intelligent and persistent campaign must end in a long delayed success."

BIGGS states that in 1912, at least 800,000 people or more than 1/15th of the total population of New York city have or have had some venereal disease and in a large percentage of these persons the disease was active. The number of new infections occuring each year probably exceeds that of other notifiable diseases combined. In view of such figures the magnitude and importance of problem of administrative control, as applied to the these diseases, become clearly apparent.

The venereal diseases are a constant menace to the clean living public as well as to the licentious. The history of preventive medicines can present no greater tragedy than the home invaded by syphilis or gonorrhœa. These two diseases are of great importance, because they are very prevalent and because they are serious infections with grave consequences. Gonorrhœa is the great preventor, syphilis the great destroyer of life. In 1913 the Royal Commission on veneral diseases was appointed and in 1916 it reported that the effects of venereal diseases upon the individual and the race are grave and far-reaching and that by early and effective treatment it could be greatly reduced. The Commission recommended various methods of treatment which were subsequently provided for in the public health (venereal) regulations. Every county and borough council is required (a) to make arrangements for enabling medical practitioners to obtain free examination of material from venereal patients, (*b*) to prepare a scheme for treatment at or in hospitals and for the supply of salvarsan or its substitutes. Authorities may also make arrangements with hospital for the purpose of regulation and provide for instructing lecturers or the publication of information. The local Government Board repay 75 p.c. of approved expenditure incurred. The methods adopted by authorities are the establishment of clinics and in-patients accommodation and the provision of

ample laboratory facilities for diagnosis and treatment (including examination of discharges, foetal tissues and other materials, Wassermann tests and the supply of Salvarsan, its substitutes and mercurial preparations). The Venereal Disease Act 1917 empowers the Local Government Board to forbid the treatment of venereal disease in any area otherwise than by qualified medical practitioners. Restriction is also placed upon medical advertisement and quack medicines.

It appears from the annual report of the Public Health Commissioner for the Government of India, for 1930, that no statistics other than those based on patients who attended the hospitals and the dispensaries are available on venereal diseases in India and from the table prepared by him, we can have an idea as to the attendance of such cases in each province.

It also appears from the table that syphilis is gradually increasing whereas gonorrhœa is decreasing. Regarding chancroids no statistics is available (vide table in the appendix).

Prevalence :—Syphilis is infective in all stages but particularly in its primary and secondary periods. This spreads by direct contact, and in 90% of cases in sexual intercourse It is occasionally conveyed by kissing, suckling etc., and indirectly by utensils, tobacco pipes, hookas and clothings. Many persons are innocently infected, perhaps 25 per cent of all women infected as stated by some authorities of England. Much syphilis is spread by infected males, ignorantly or recklessly and one syphilitic prostitute may infect scores or even hundreds of men. I could personally trace out about 40 cases infected through the agency of an infected prostitute attending a *mela* in an interior village within a short period and could guess about 50 others infected persons who escaped detection by medical people of the locality. ERB estimated that 12 per cent. of the population of Berlin is syphilitic and probably the proportion in Paris, London and other large towns is similar. Special enquiries in hospitals, prisons and asylums have shown, by the Wassermann test,an incidence varying from 5 to 15 per cent. HARMAN made an analysis of 1001 pregnancies of syphilitic women which only yielded 390 healthy living children and MOTT observed 175 of such pregnancies which yielded 30 healthy children. The amount of infection in certain groups is, given, by VEDDER as follows :—Prostitutes 50 to 100%, persons in tuberculous institutions 20 to 30 %, sick children in hospitals 2 to 10 %, mentally backwards and idiots 20 to 40 %, criminals 20 to 40 %, presumably healthy men of the class that enlist in the regular army 20%, this group represents unskilled labour and a certain percentage of tradesmen. Among men of better families the percentage varies from 2 to 10 % depending upon age, marital conditions and other factors. Among young women in the community the percentage fluctuated between 3 to 20 per cent. depending upon age, marital condition, education and social status. Syphilis is a good illustration of the fact that it is much more difficult to control,a disease transmitted directly from man to man than a disease transmitted by an intermediated host, or one in which the virus is transferred through our environment. We have certain amount of control over our surroundings and we have dominion over the lower animals, but the control of man requires the consent of the governed.

Civilisation and syphilization have been close companions but syphilis is now less prevalent among civilized than uncivilized people—this is promising. From the economic consideration syphilis is not a serious disease in its primary and secondary stages as the patients are not ill enough to cease work. Acutely fatal cases, such as frequently occurred in the sixteenth century are now rare as the disease has lost much of its virulence. It is the late manifestations or the so-called parasyphilitic lesions as well as the inherited consequences of the disease, that play havoc.

The consequences of syphilis are often upon the offspring than upon syphilitic parents. The infection itself, or various defects,specially of the nervous system, resulting from syphilis may be transmitted from parent to child often with fatal results. When death does not ensure, the result may be still more tragic.

The health officer should regard syphilitic infection as he does the acute febrile exanthematous diseases. It is a mistake to consider it otherwise because it runs a slow and often chronic course with mild constitutional symptoms during its early stages. Syphilis has its period of incubation, eruption and decline just as measles and smallpox have.

There is an accurate historical record of the

spread of syphilis over the human world in a few years after 1495 and from this time it has been endemic everywhere. Syphilis was unknown before the year 1493. It is said to have been brought by the crew of Columbus.

Fatality of Syphilis ; (1) syphilis is the chief cause of death in early adult life in persons otherwise hale and hearty.

(2) OSLER sometime ago made the statement that of the killing diseases, syphilis comes third or fourth." But from an analysis of the statistics for 1915 the Registrar General estimates the actual deaths form syphilis in England and Wales at about 60,000, syphilis thus being at the top of the killing diseases.

(3) LEREDOE estimates that syphilis probably kills 25,000 persons each year in France.

LENZ stated in 1913 that in large cities 25 per cent of syphilitics die as the result of cardiovascular complications (angina pectoris) while 3 or 4 per cent of syphilitics die from general paralysis, 1 or 2 per cent from tabes dorsales and at least 10 per cent or more as the result of syphilitic lesions of the brain, liver, kidney. Allmost half of all syphilitics eventually succumb as the result of their infection. Syphilis is therefore the greatest cause of premature death of men in large cities.

(4) MATTAUSCHEK and PILEZ in January, 1912, found that of 4134 officers of the Austrian Army who contracted syphilis between the year 1800—1909, 198 had general paralysis ; 113 had locomotor ataxia ; 132 cerebrospinal syphilis ; 80 suffered from different psychoses ; 17 died of aneurysm ; 148 died of tuberculosis ; 20 died of syphilis designated as the cause ; 101 developed myocarditis and arteriosclerosis and 86 died of such conditions.

(5) From my own observation in Calcutta and in the district I may safely state that syphilis is very prevalent in bigger cities than in the district head quarters and it is far less in the villages of Bengal Presidency. But it is spreading virulently in localities where annual melas are held and prostitutions are allowed without any check. At least 90% of these cases are neglected in the primary stages and 50% of them in the secondary stage. So the consequences of such negligence are evident with the greater death rate due to such infective disease of a very dangerous nature. This is so, because the illiterate ignorant people do not know the effect of such disease, neither have they money for proper treatment. So they mainly depend upon quacks of every description. It is therefore desirable that the Government should take adequate measure for the control of such a nasty disease by an enactment authorising health authorities to inspect and examine infected cases, specially the public women, so that by proper treatment under the supervision of the Health Department, they are cured before they are allowed to conduct the business of prostitution.

PREVALENCE OF GONORRHŒA

Gonorrhœa is much more prevalent than syphilis and common opinion regards it as a mild and not a shameful disease like syphilis. As a matter of fact gonorrhœa is one of the serious infective diseases and the gonococcus occupies a position of high rank among the virulent pathogenic organisms. From economy and public health stand point gonorrhœa does not fall very far short in importance. The disease is liable to chronicity and is hard to cure unless treated in its early stages. Its complications are (*a*) peri-urethral abscess, (*b*) prostatitis (*c*) epididymitis which causes sterility, cystitis and urethral stricture in the male. In the female (*a*) vaginitis, (*b*) endocervicitis and (*c*) inflammation of the glands of Bartholin. Endometritis and salpingitis may occur often with sterility.

The gonococcus sometimes invades the blood and produces a general septicæmia and death may occur from acute endocarditis. The gonorrheal arthritis is, in many respects, the most damaging, disabling and serious of all the complications of gonorrhoea. It may also follow ophthalmia neonatorum. It is more frequent in males than in females but gonorrhœal arthritis of great intensity may occur in a newly-married woman infected by old gleet by her husband. The gynaecologist tells us that greater part of his practice is made up from gonorrhœa.

MORROW assures that 80% deaths from infection peculiar to women are due to gonorrhœa. From 75 to 80% of all operations of the female genital tract are said to be due to gonorrhœa alone.

Gonorrhœa is usually transmitted by sexual congress but accidental or innocent infections are not infrequent, specially in children. It is responsible for from 6,000 to 10,000 cases of blindness

and is the cause of 60% of blindness of new born and of more than 10% of all blindness. It is the cause of many chronic diseases of the joints, bladder and generative organs. So it greatly decreases earning capacity and is an underlying cause of untold sufferings and misery which affect practically all prostitutes, public and clandestine, notwithstanding the preventible nature of gonorrhœa.

Standard of cures :—It is difficult to say when a case is cured but the following tentative rules are laid down by the United State public service to form an opinion as to the cure.

(*a*) Males :—(i) Freedom from discharge.

(ii) Clear urine—no shreds.

(iii) The pus expressed from urethra by prostatic massage must be negative to gonococci on four successive examinations at interval of one week.

(iv) After dilatation of the urethra by passage of a full-sized sound, the resulting inflammatory discharge must be negative to gonococci.

(*b*) Females :—(i) No urethral or vaginal discharge,

(ii) Negative results on examinations for gonococci of secretions from urethra, vagina or cervix at an interval of 48 hours and repeated on 4 successive weeks.

Prevention—Inject into the urethra 2% protargol or 10% argyrol as soon after the exposure as practicable and drop into the eyes of newly born infants of mothers suffering from gonorrhœa.

Prevalence of Soft Chancre

Chancroid or soft chancre is a specific, local auto-inoculable contagious venereal sore caused by *strepto-bacillus* of Ducrey (1889) to be distinguished from indurated syphilitic lesions. It is painful, multiple, accompanied by enlarged but not hard glands, has a short incubation period and gives rise to no generalised disease.

As many as 50% soft chancres are mixed infections with *spirochaeta pallida*. Every venereal lesion should be examined by dark field illumination for spirochaeta. This is of great importance from public health stand point and individual prophylaxis. Chancroids are usually contracted in venery. The disease should not be regarded as a slight and negligible malady, for on account of mixed infections serious consequences, sometimes death, may result. Complications of ulcers are (1) phimosis resulting from inflammation and swelling. (2) destruction of fraenum. (3) gangrene and phagedaena (4) lymphangitis with inguinal adenitis. The inguinal buboes are painful and frequently suppurate.

Prevention :—(1) A little soap and water at the time of exposure is almost an absolute preventive for soft chancre. (2) If the ulcer has developed it may be aborted by cauterisation provided the chancre is not more than 3 days old. (3) Even when 7 days old, the ulcer may often thus be cured, but when more than a week old, cauterisation should not be employed because if it fails, it leaves the sore larger than ever. The method of cauterisation advised by Keyes consists of washing the ulcer by hydrogen peroxide, drying, applying pure carbolic acid, washing again with hydrogen peroxide and dusting with calomel.

Spirochaeticides should not be used locally until syphilis has been definitely excluded by dark field illumination.

Prophylaxis of Venereal Disease

The venereal diseases are the most widespread and universal of all human ills and enter more largely into the marring of domestic happiness than any other disease known to man. Gerrish estimates that 10% of the population of New York has syphilis. Fischer states that there are 250,000 deaths each year in the United States due to venereal infection.

Venereal diseases should not be regarded as a punishment for sin—the victim or culprit needs help, even sympathy. The immediate problem is the prevention of further spread of the infection. A person afflicted with a venereal disease, should be treated in the same humane spirit as in other diseases. From the stand point of prevention suitable hospital accommodation must be provided for venereal cases. Education in sex-hygiene and venereal peril accomplishes a certain amount of good. Every boy and girl before reaching the age of puberty, should have a knowledge of sex, and every man and woman before the marriagable age should be informed on the subject of reproduction and the dangers of venereal diseases. The education must be brief, clear, pointed and direct,

A knowledge of the peril to future wife and offspring is the most impressive fact to keep boys straight. There should be provision in every area of adequate facilities for prompt diagnosis and efficient treatment free of charge. The quacks should not be allowed to treat cases. Carnal lust may be cooled and quelled by hard work of the body as well as attention to personal hygiene. Idleness, stimulating food, over-eating, impure thoughts, evil associates, and alcohol excite the passions and are the bed fellows of the venereal diseases. Circumcision is recommended as a prophylactic against syphilis. Regulations of prostitution by means of medical inspection and license have proved a failure wherever tried. Regulation fails because it makes vice easy, gives a false sense of security and does not reach clandestine prostitution. Sanitary isolation through self-restraint and care necessary to prevent the infection of innocent persons must be taught to and impressed upon all infected individuals. Medical prophylaxis e.g. use of calomel ointment, Sol. Argyrol, injection of salvarsan etc., are useful.

Finally in considering venereal prophylaxis it should be remembered, that these diseases are of great antiquity and seem likely to contonue indefinitely, that they have already affected a large number of the population and are spreading; that the existing means for the treatment of the poor patients is insufficient; that the common mode of propagation is irregular and illicit intercourse and the prostitutes themselves need protection and have claims on the humanity of the law.

The reduction of venereal infection requires education and publicity, notification, laboratory facilities for diagnosis, dispensary and hospital facilities, public health nurses and social service, and good law actively administered. Medical schools should give more time to the diagnosis of early syphilis, since at this stage the best results in treatment and prevention can be offered. A stricter supervision of bath rooms, commodes barber shops, restaurants, hotels, soda-water shops, infant asylums and schools should be maintained; prostitution should be made difficult and distant and early treatment of all cases instituted. Medical prophylaxis should be better understood and the importance of personal hygiene impressed. Moral and physical sides of mankind should be improved.

APPENDIX A.

Case of Venereal Diseases Treatment During

Province	1930.			1929.			1928.		
	Gonorrhœa.	Syphilis	Total.	Gonorrhœa.	Syphilis	Total.	Gonorrhœa.	Syphilis	Total
United Provinces ..	26,264	39,237	65,501	25,789	40,947	66,745	24,550	1,39,828	164,378,
Madras Presidency ..	96,569	94,775	1,91,344	76,344	86,466	1,62,810	73,757	98,384	1,72,141
Burmah ..	20,525	30,101	50,626	20,004	30,198	50,202	19,187	29,643	48,830
Central Provinces ..	12,716	16,879	29,595	12,187	17,197	29,384	11,427	16,096	27,523
Delhi Province ..	2,781	4,718	7,499	4,454	4,470	8,934	1,971	3,767	5,738
Behar & Orissa ..	29,117	43,603	72,720	28,860	45,179	74,039	29,363	44,775	74,138
Assam ..	5,224	2,328	7,552	5,194	2,557	7,751	5,534	2,986	8,520
Bengal Presidency ..	47,955	34,733	82,688	51,135	37,288	88,423	39,848	26,636	66,484
Bombay ..	22,352	35,952	58,304	22,138	34,800	56,908	21,442	35,499	56,941
N. W. F. Province ..	919	4,304	5,223	1,029	3,190	4,219	953	3,095	4,048
Coorg ..	235	219	454	278	309	587	Not available.		
Beluchistan ..	1,234	2,124	3,358	1,408	1,937	3,345	1,092	1,801	2,893
Punjab ..	13,818	17,684	31,502	12,561	17,416	29,977	12,154	16,496	28,650
Total ..	2,79,709	3,26,657	6,06,366	2,61,390	3,21,954	5,83,344	2,41,278	4,19,006	6,60284

APPENDIX B.

Statement showing venereal diseases treated in Bengal (District by District) during the year 1932 *furnished for Annual Report of Surgeon General with the Government of India for* 1932.

		Gonococcal infection.		Syphilis.		Other diseases, venereal origin.		Total	
		Treated	Death.	Treated.	Death	Treated.	Death.	Treated	Death.
1	Burdwan ..	748	..	799	2	229	2	1776	4
2	Birbhum ..	244	1	425	1	229	..	898	2
3	Bankura ..	270	..	462	..	175	..	907	..
4	Midnapore ..	3204	..	2827	..	1409	2	7440	2
5	Hooghly ..	1529	1	1526	..	1063	1	4118	2
6	Howrah ..	919	..	688	..	403	..	2010	..
7	24 Parganas ..	3381	..	2189	3	1112	3	6682	6
8	Nadia ..	506	3	556	1	286	..	1348	4
9	Murshidabad ..	603	..	746	..	355	..	1704	..
10	Jessore ..	408	..	240	..	146	..	794	..
11	Khulna ..	904	1	645	..	212	1	1761	2
12	Dacca ..	5286	..	3220	..	2621	..	11127	..
13	Mymensingh ..	4118	..	2757	..	465	..	7340	..
14	Faridpur ..	1019	..	522	..	682	..	2223	..
15	Bakarganj ..	2753	..	775	..	386	2	3914	2
16	Chittagong ..	1125	..	380	..	98	1	1603	1
17	Tippera ..	2247	..	832	..	613	..	3692	74
18	Noakhali ..	605	..	202	..	178	..	985	..
19	Chittagong N. T.	133	..	172	..	51	..	356	..
20	Rajshahi ..	1129	..	925	..	772	..	2826	..
21	Dinajpur ..	552	1	285	..	161	..	948	1
22	Jalpaiguri ..	328	..	249	..	123	..	700	..
23	Rangpur ...	647	..	281	1	83	..	1011	1
24	Bagra ..	668	..	281	..	266	..	1215	..
25	Pabna ..	775	..	533	..	206	1	1514	c1
26	Malda ..	132	..	105	..	49	..	286	..
27	Darjeeling ..	238	..	230	2	6	..	474	c2

An Interesting Medico-Legal Case.

CAPTAIN U. SINHA GUPTA, B.SC., M.B., B.S.
Civil Surgeon, Bara Banki (U.P.)

It was on November 3, 1933 that I did a post-mortem examination, full notes of which are given below :—

No. 59-P.M., dated November 3, 1933.

Report of the post-mortem examination

On the body of Jagdei D-o. Debi Chamar.
Place : Bara Banki, dated November. 3, 1933. Time 10 A.M.
Body identified by police constable No. 193, Ahmad Ali, P. S. Kotwali, Bara Banki.
Probable age, 7 years.
Probable time since death, about 2 days.

A.—External Examination

1. Condition of body as regards muscularity, stoutness, emaciation, rigor mortis and decomposition.	Fairly muscular, rigor mortis absent on upper limbs and passing off from lower limbs. Body decomposing. maggots $\frac{1}{8}''$ present in the wounds.
2. Marks of identification, especially in the case of the body of an unknown person.	....
3. Eyes.	Closed.
4. State of natural orifices, ears, nostrils, mouth, anus, urethra, vagina.	Vagina absent. Rest normal.
5. Injuries—nature ; exact position and measurements including direction. especially in incised wounds.	1. Incised mutilated wound $2'' \times 1'' \times 2''$ deep on the left side of front of neck. 2. Incised mutilated wound $4'' \times 1'' \times 2''$ in front of neck. 3. Incised mutilated wound $2\frac{1}{2}'' \times \frac{1}{2}'' \times 2''$ on the right side of front of neck. *N.B.*—These wounds are separated by thin strips of skin. They are result of a large number of strokes probably by a sharp cutting light weapon. The edges of wounds have marks of a large number of strokes. Oesophagus, wind-pipe and blood vessels on rt. side are cut through. 4. A triangular incised wound $3\frac{1}{2}'' \times 3'' \times 3''$ abdominal wall deep—3″ below naval in the middle line. Abdominal wall in this area is absent. 5. A triangular incised wound $2\frac{1}{2}'' \times 1\frac{1}{2}'' \times 2''$ situated just below No. 4 removing the external genital organs. 6. An incised wound $5'' \times 1'' \times$ skin deep consisting of several linear strokes above No. 4.
6. Bones and joints.	Bones of symphysis pubis have been cut through half an inch either side of middle line and central portion of bone removed.

7. External organs of generation.	Absent. Breasts not at all rising.
8. Additional remarks.	As the vagina with other external organs of generation has been entirely removed, no opinion about a rape being committed on her can be given.

B.—Internal Examination

I.—*Head and Neck*

1. Scalp, skull bones (vertex).	Normal. No fracture of skull.
2. Membranes.	Congested.
3. Brain.	Congested.
4. Base of skull.	No fracture.
5. Vertebrae.	No fracture.
6. Spinal cord.	Not examined.
7. Additional remarks.	Nil.

II.—Thorax

a. Walls, ribs, cartilages.	Normal. No fracture.
b. Pleura.	No abnormality.
c. Larynx, trachea and bronchi.	No foreign body.
d. Right Lung. } ..	Normal, Decomposing.
e. Left Lung. }	
f. Pericardium.	No abnormality.
g. Heart with weight.	Wt. 4 Oz. Empty on both sides.
h. Large vessels.	No abnormality.
i. Additional remarks.	Nil.

III.—Abdomen

1. Walls. }	
2. Peritoneum. } ..	No abnormality.
3. Cavity. }	
4. Buccal cavity, teeth, tongue, and pharynx.	24 teeth in mouth. No foreign body in mouth.
5. Oesophagus.	Cut through.
6. Stomach and its contents.	Contains about 4 ozs. of smei-digested rice and Indian corn.
7. Small intestine and its contents. } ..	Normal with their contents.
8. Large intestine and its contents. }	
9. Liver (with weight) and gall-bladder.	Wt. 1 lb. 4 ozs.
10. Pancreas.	No abnormality.
11. Spleen with weight.	Wt. 2½ ozs. Normal.
12. Kidneys with weight. Rt. } ..	2 ozs. each.
13. Bladder. Lt. }	Anterior wall removed in the process of removal of ext. genitals.
14. Organs of generation.	Vault of vagina with cervix, uterus and ovaries intact.
15. Additional remarks, with, where possible, medical officer's deduction from the state of the contents of the stomach as to time of death and last meal.	....

C.—Date and hour of onset of symptoms. To be answered in case of poisoning.
Ditto of death.

D.—Opinion as to cause and manner of death.
Incised wounds cutting the throat and causing excessive haemorrhage and shock.

Discussion

The point that I had to decide was whether it was not the work of an animal. I was doing the post-mortem about 2 days after death, and some animal of prey could have carved the dead body in such a way as to simulate the work of man.

The history that the mother of the girl gave me on the day I did post-mortem, was that the girl was missing from about 10 a.m. on November 1, and dead body, with wounds on neck and lower abdomen, was found about 4 p.m. Rest of that day and whole of next day were spent in police station and bullock cart journey. Of course even 6 hours should be enough for an animal to inflict those wounds.

I had the vernacular report read to me, and then entered the post-mortem room. My first impression on looking at the body was that it was the work of an animal. On examinang the body a little more closely I found the following :

1. There were no marks of biting with teeth any where on the body. I made a very thorough search by rolling the body over but failed to find any.
2. The scratches were present only along and about the edges of wounds, and nowhere else. My mind was unwillingly leaving the idea of an animal.
3. I looked at the wounds more closely. There were a large number of linear abrasions and cuts on the edges of the wounds everywhere like those inflicted by a rather blunt penknife. Ribbons of skin were consequently left between the wounds on neck.
4. I was inclined to think that the girl was probably raped first and then the wounds on neck inflicted. The wounds on abdomen and perineum appeared to me to be works on dead or unconscious body as they appeared to have been done at leisure with some deliberateness.
5. The upper triangular wound, the one just below navel, puzzled me for long. Why was it inflicted ? Even now I am not quite clear in my mind about it. It was only abdominal wall deep and the peritoneal layer was keeping the bowels inside the abdomen. The lower wound was also triangular. Perhaps the upper one was inflicted for the same purpose as the lower one, i.e. removal of genitals. The man did not know any anatomy. He was probably playing with the parts or fingering the damage done during rape, and by pushing the finger up he saw the protruberance, caused by raising up of uterus, below navel. So he thought that he could remove the private parts by cutting there. He was removing the private parts either due to *sadistic* tendencies or to obliterate the damage done by rape.
6. Having failed, as he did above, he inflicted another wound lower down, and this comprised *mons* and external genitals. Not a trace of external genitals was left. But in this crude dissection of his he found that the canal of vagina tunnelled under the bone. So he cut into the bone on either side of symphysis. The wedge of bone was absent. Cut surfaces of pubic bones were perpendicular and bore the irregularities of a large number of cuts by the weapon. Now I was convinced beyond doubt that no animal could remove a wedge of bone like this. The vaginal canal lying behind the bone was removed including the posterior wall but excluding fornices, cervix and parts above. These removed parts were not found lying in the neighbourhood and were probably carried away by the perpetrator to be kept or destroyed.

I am sorry it is one of those cases in which no trace of the murderer could be found. Consequently I am not in a position to give any more details that would throw light on the subject. It's a pity, but it cannot be helped. The case, however, should prove of interest to the profession, as I do not know if a case like this has been recorded in medico-legal literature.

A Note on the Treatment of a case of early Leucoderma by Yeast.

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Calcutta.

The case, here reported, concerns a young girl, 10 years old, who, without any apparent reason, began to develop leucoderma in the zone around the eyes about May, 1932. The non-pigmented area began to spread and treatment with pituitary extracts had only a slight effect. The case was later brought to my notice and considering that vitamin B_2 (the anti-pellagra (?) or anti-dermatitis vitamin) might prove beneficial, I suggested an intensive treatment with a commercial preparation of yeast, which was rich in vitamin B_2 (as assayed by me). The treatment soon proved obviously effective. The treatment lasting three months brought about practically a complete cure, though the progress of the recovery was not entirely straightforward. It may be mentioned that the girl came from a well-to-do family and presumably did not suffer from any gross nutritional deficiency. The reason for suggesting yeast-therapy was that I considered from researches with experimental animals that vitamin B_2, the deficiency of which causes pellagra (?), depilation and various skin-symptoms, might stimulate the metabolism of the skin.

The above report is not intended to show that leucoderma is either caused solely by a deficiency of vitamin B_2 or may invariably be cured by supplying vitamin B_2 in quantity, Nor does it prove that the causative factor in yeast was really vitamin B_2. It is conceivable, however, that if vitamin B_2 therapy is given an extensive trial in early leucoderma and a statistical analysis of the results made, we may get a better insight into both the aetiology of the disease and its cure. At present practically no information on these points is available.

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Editorial Comments

The Golden Jubilee of the Bombay Medical Union.

We have before us a brochure giving the presidential address of Dr. Jehangir J. Cursetji on the occasion of the golden jubilee of the Bombay Medical Union delivered on the 21st January, 1934, and a resume of the work done by the Union, during the last 50 years, for the improvement of medical education, organisation and profession. It would repay the members of our Association to peruse this splendid address which is published in full in this issue. Fifty years ago the Union was started by three doctors, including the President, "to initiate and establish a friendly intercourse between the members of the profession and to consider and promote its best interests." It is refreshing to note how the Union prospered inspite of unfavourable vicissitudes from time to time and has now come to occupy an important position among the medical profession in western India. The keenness of the members will be illustrated by the fact that their work induced donors to donate Rs. 10,000 for a library, Rs. Rs. 2,300 for the annual award of a gold medal to the value of Rs. 100 to the author of the best treatise on any selected scientific or medical subject chosen by the Union, besides various other grants for the improvement of the Medical Union. We offer our sincerest congratulations to the Union, on the occasion of their golden jubilee and wish it a prosperous and active career in helping to achieve the co-ordination and progress of the Indian medical profession.

We shall briefly take up some aspects of the work of the Union for our comments to-day. It has been stated that the foundation thus laid over half a century ago has stimulated "a steady rise and growth of the medical profession in India by bringing together its interests and aspirations into a common fold." The formation and consolidation of the Indian Medical Association is an eloquent testimony to the desire of the different medical organisations in various parts of India "to bring in the bonds of good fellow-ship and mutual professional interest within the circle of a united medical fraternity."

Besides running an ably edited journal which reflects the literary and scientific activities of the Union, it has worked actively to represent the views of the medical profession in that part of India on various questions affecting the interests and welfare of the Indian medical profession. We are glad to find that the President has quite fittingly devoted a considerable space in his address against the employment of I. M. S. Officers in civil capacity. He has shown by irrefutable arguments that the plea of keeping these officers in civil employ in the provinces as "war reserve" is a myth for, as was shown during the last European war, this so-called reserve will be completely inadequate to meet the needs of a war if it breaks out. If the I. M. S. officers are meant for the Indian section of the army in India, we do not see any reason why such a large number (470) should be set apart as a reserve. The entire British personnel can be replaced by Indian officers of the I. M. S. and if the examinations are held by the open competitive method then the question of British *versus* Indian, as regards efficiency, would not arise. A much smaller proportion of war reserve ought to do in peace time, as three to four times the number of Indian medical volunteers can easily be raised in India in case of emergency during a war, as was demonstrated by the enrolment of over 1100 volunteers during the last great war. We thank the Union for the very splendid reply they gave to the Memorandum of the British Medical Association on the retention of the British personnel in the Indian Medical Service. While we object to the retention of I. M. S. officers in civil employ, it does not mean that we do not appreciate the splendid work in the research organisations done by some of the distinguished members of the service, but we want them to realise that the Indian medical profession has made considerable strides in the meantime and can now supply equally able, if not better, physicians, surgeons, gynaecologists and research workers almost

in every city and that they can show their worth when they are given an opportunity to demonstrate it. We are sure they would be prepared to work for their own motherland at a much less salary than is necessary to retain the services of these British officers in the Indian Medical Service. We want the British Medical Association, the Joint Select Committee and other authorities to realise that, if the same amount of efficiency is retained, it would be unfair to force such highly-paid posts on the slender resources of the provincial governments in India. We would appeal to the members of the Indian Medical Service to appreciate the situation and to help India to march forward with her impoverished resources by improving her medical efficiency and public health organisations according to her might and to take her proper place among other nations of the world. We cannot lend ourselves to think for a moment that a nation which has shown so much sacrifice in their own land would stand against the very thing that should be done by Indians in India. The medical profession which has been truly described as the noblest of all profession should not be utilised for any purpose that is derogatory to the best interests of the profession in India or detrimental to the proper evolution of a medical and public health organisation within the shortest possible period. Past experience has shown us that, whenever we have attempted to take a forward step, either for the improvement of the medical profession or of education or in matters of registration, the official block has strenuously resisted the best interests of the profession. This is a very unfortunate state of affairs and we appeal to the entire official element in the services to change their outlook and to rise up to the occasion to help the Indian medical profession to make it better and better and to enable it to take its proper place in this country. The controversy over the All-India Medical Council Bill lately demonstrated how we were likely to meet with obstruction at every step of our progress.

The President's remarks regarding the opposition of the Bombay Medical Union against the inclusion of the Licentiates by the Bombay Medical Registration Act of 1912 will not be supported by any other organisation in India. It should not be lost sight of that the Licentiates, whose qualifications have been recognised by Statute in India, number 5 times that of the graduates and that they form an important limb of the medical and public health machinery of the land. It would take some years before we can standardise the medical education in India and until that is done, it would be sheer injustice to throw the licentiates overboard when the question of recognition comes. By "recognition" we mean recognition in India, for however high a foreigner's qualification is, none is allowed to practise in France, Germany, Switzerland and many other countries. Our primary requirements are to improve and standardise the medical education and organisation in India. International recognition comes later and should always be reciprocal. We hope the members of the newly appointed Indian Medical Council will remember this and try to hold the banner in right spirit.

We also find a mention of the activities of the Bombay Medical Union with regard to the Indian Medical Council Bill in the presidential address but we are sorry to find that no mention has been made anywhere in the address of the efforts of the Indian Medical Association for altering many of the harmful provisions of the Act. It is well-known how the Indian Medical Association mobilised the medical opinion in different parts of India, arranged for a deputation to the Hon'ble Member-in-Charge of the Bill and made an intensive propaganda among the members of the Legislative Assembly and of the Council of State. Without meaning any disrespect for our sister organisations in different provinces, we confess we have sometimes noticed that the older medical organisations in some provinces are naturally proud of their achievements, but we would appeal to them to realise, while thanking them for their past work, that a time has come when we should try to achieve what the President of the Bombay Medical Union says remains to be achieved. We quote his own words here as to how this can be done "This can only be done by an unselfish unity of purpose and a closer union and cordiality for the common good of our profession in which, I am afraid, we are still somewhat lacking". May we appeal to all medical men and organisations in India to join together and strengthen the hands of the Indian Medical Association which, as an elected body, truly represents them. Let the medical profession, European and Indian, help each other to develop this important structure of nation building in India.

Current Medical Literature.

MEDICINE

Administration of Anti-meningococcus Serum is cases of Cerebrospinal Fever.

In the reports of the Ministry of Health, March, 1932 (Med. World, Jan. 19, 1934) the following points have been emphasised in serum treatment.

1. As soon as a patient is suspected to have cerebrospinal meningitis, on clinical grounds, lumber puncture should be performed, serum should be injected intrathecally without waiting for the bacteriological confirmation.

2. The intrathecal doses should ordinarily be 30 cc. (10 cc. if the serum is concentrated).

3. The injection should be repeated every 24 hours for at least 3-4 days or until convalescence is established.

This method of treatment was carried out in a series of 811 cases. Though the number is insufficient to justify a final conclusion, nevertheless in view of the doubts sometimes expressed regarding the value of any kind of anti-meningococoal serum, it is note-worthy that the mortality in the series was 26.9 per cent. at all ages and to this extent the results are encouraging.

J. C. B.

Colloidal sulphur in Treatment of Arthirtis.

B. D. Senturia (Jour. Bone & Joint Surg. Vol. XVI No. 1, 119, Jan. 1934) as a result of his study of sixty unselected case of chronic non-specific arthritis and rheumatoid conditions which were treated mainly with intravenous or intramuscular injections of collodial sulphur once or twice a week, records improvement on 75% of the series. The average number of injections per patient was 17.3, the minimum, 10 ; and the maximum 26, Most of the patients showed signs of improvement after the third and before the tenth injection. The author advocates twenty injections as a course before treatment is given up in any particular case. The injections are quite safe and no untoward effects were observed except slight discomfort at the site of injection and occasional rise of temperature upto 100.1. The mode of action of sulphur injections is not definitely known. Most authorities agree that it helps the oxidation processes of the cells. The writer in conclusion believes colloidal sulphur to be a valuable adjunct to the usual measures adopted in the treatment of arthritis and similar disorders.

J. C. B.

Post-Typhoid Spondylo-Arthritis.

A. Osinski (Pol. Przeg. Radjol. VII, 291,1932, Ref. Jour. Bone and Joint Surg. 231 Vol. XVI, No. 1 Jan. 1934) reports three cases of post-typhoid spondylo-arthritis of the lumber spine. The X-ray picture is characteristic and consists of a destruction of intervertebral disc, an erosion of the superficial layers of the vertebral body, and signs of active reparation. In all three cases, in addition to the typhoid history, there was coincidental history of mild trauma. In all the cases the lesion had a favourable termination and this is considered by the author an important point in differentiating this condition from tuberculosis of the spine.

J. C. B.

An obstitinate case of Kala-azar clearing up after an attack of Typhoid Fever.

Policinico. Sez. Prat. 1933. April 10, Vol. 40. (Ref : Tropical Diseases Bulletin London, Nov. 1933,) reports a case that a child six years of age and suffering from Kala-azar, had failed to respond to treatment with antimony tartarate, 80 centigrams of which had been given, when its condition suddenly became worse. A spleen puncture showed that *leishmania* were still present. On carrying out a blood culture it was found that the child had contracted typhoid fever from which it recovered in four weeks. At the same time the general condition improved till finally it became evident that the typhoid infection had brought about a cure of the Kala-azar.

J. C. B.

Heart Block in the Young

I. I. Lemann (Ann. Int. Med. Vol. 7, No. 6, Jan., 1934) reviews the literature of heart block in

the young and shows that it is by no means a rare condition. Of approximately 100 cases, about 42 per cent. are congenital and associated with a developmental deformity. Diphtheria, rheumatism and influenza are important etiological factors. There is reason to believe that heart block in hearts not the site of degenerative changes is not incompatible with long life, Many patients have no Stokes-Adams' attacks and suffer no inconvenience. On the other hand, the possibility of its existence should be considered when we are dealing with fainting spells and convulsive movements in the young.

J. C. B.

SURGERY.

Neurogenic Appendicitis.

Kiyoshi Hosoi of New Orleans, La., (American Journal of Surgery, Vol. XXII, No. 3, 1933 ; Pp. 428—446) has studied 344 non-inflamed appendices to determine the incidence and what symptom complex the appendical neuromas (so-called neurogenic appendicitis) may show. He maintains that chronic appendicitis is often functional and is more of a clinical than a pathological entity. A variety of conditions might be responsible for the pain over the appendix area ; viz, (1) a mobile and dilated cœcum, (2) Lane's ileal kink, (3) Jackson's pericolic membrane, (4) infestation by the *oxyuris vermicularis*, (5) endometriosis, (6) tumors of the appendix itself, (7) tuberculous mesenteric lymph-adenitis, (8) strangulated epiploic appendage and (9) diaphragmatic pleurisy.

This study has shown that symptoms of severe or mild pain may arise from the presence of axial neuromas in the obliterated or non-obliterated appendix. Physical examination may even reveal a rigid abdomen, especially in the right lower quadrant, plus marked tenderness.

In some cases, rebound tenderness was present and psoas test was positive. Their agony may be so extreme that these patients literally double up or roll about, trying to obtain relief ; or their complaint may be simply a dull ache or discomfort in the right lower quadrant with only a slight tenderness at McBurney's point. Nausea with or without vomiting ranged from mild to severe and varied in number from one to many. In spite of the acuteness of the symptoms and signs, the temperature is normal and the total white and differential counts appear to remain at normal levels.

Age appears to have no etiologic importance, neither sex.

G. M.

Tha Pernicious Anæmia Syndrome in Gastrectomized Patients.

S. Milton Goldhamer (Surg. Obst. and Gyn ; Aug. 1933) in support of the relationship between achylia gastrica and pernicious anæmia reports a case of partial gastrectomy which was followed by the typical pernicious anæmia syndrome 2 years later, though no anemia was noted previous to the operation. In connection with the report, the writer gives in a tabulated form a summary of the findings from the cases reported in the literature concerning the association of gastrectomy and pernicious anaemia syndrome. 23 cases are tabulated of which 9 were operated for ulcer of the stomach, 10 for malignancy and 4 for questionable but highly probable syphilis of the stomach. Total and partial resections were common and in 4 instances gastro-jejunostomies were performed. Anaemia developed in from 5 months to 15 years following the operation. The other symptoms most commonly noted were those associated with anaemia ; weakness, tiredness, fatigue, pallor, dyspnoea and palpitation. Of these, 14 cases were treated with liver therapy, orally or parenterally and a response like that of any uncomplicated case of pernicious anaemia was obtained. According to Pools and Foster, anaemia occurs in all gastrectomised patients if they survive long enough. The development of pernicious anaemia following gastrectomy appears to be further evidence in support of the theory that some function of the stomach is a factor in the prevention of this malady. Any agent which would destroy this function of the stomach, whether it be disease or the removal by operation, would give the same resulting blood picture as that of pernicious anaemia. From a study of the blood findings of the cases reported, it is apparent that with liver therapy the red cells have returned to a normal level and have been properly maintained but the haemoglobin still remains deficient. From this study the writer suggests that there is also a disturbance of the iron metabolism as a result of the

gastrectomy and therefore suggests the possibility of a relationship between iron metabolism and normal gastric functions.

A. N. R.

Infrapulmonary Empyema.

ARTHUR. S. W. TOUROFF (Surg. Obst. & Gyn., Aug. 1933) describes a variety of empyema which is a type of encapsulated suppurative pleuritis in which the effusion is interposed between the lower lobe and the diaphragm. Infrapulmonary empyema most commonly results from the extension of infection from lung into the adjacent pleura. A second cause is the extension of infection from beneath the diaphragm as in subphrenic or liver abscesses. For purposes of description and classification, the cases have been divided into three groups.

(1) The first group comprising cases in which the purulent collection remains localized between the lower lobe and the diaphragm and does not come into contact with the chest wall at any point. The purulent collection in this group becomes encapsulated and completely separated from the chest wall on all points.

(2) The second group is comprised of cases in which the purulent collection after reaching a variable size, dissects its way beneath the margin of the lower lobe at a certain point. and there comes into contact with the chest wall. The end stage of this variety, then discloses the existence of an infrapulmonary collection with a parietal extension of varying size and shape situated usually posteriorly.

(3) The third group is comprised of cases in which the entire effusion remains localised beneath the lower lobe, but at the same time it is not separated from the chest wall by the margin of the lung.

The symptomatology peculiar to the disease consists in the existence of early pain due to diaphragmatic irritation. The site of pain is dependent on the area of diaphragmatic involvement i.e. central or peripheral or both. Irritation of the central portion or dome results in pain in the shoulder over the area supplied by the third, fourth and fifth cervical nerves. Irritation of the peripheral portion of the diaphragm results in pain in the lower chest, upper abdomen, and occasionally even in the lower abdomen. Physical sign depends upon the degree of extension of pus. X-ray examination reveals in general different groups of findings. The diagnosis of infrapulmonary empyema rests on a complete consideration of history, physical signs, clinical course, X-ray examination and the result of aspiration of the chest.

Treatment consists in excising a segment of overlying rib and entering the cavity safely within the area of limiting adhesions. Care must always be exercised to remain within the area of limiting adhesion and thus to avoid infecting the free plural cavity.

A. N. R.

Acute Appendicitis after Forty.

U. MAES et al. (Amer Jour. Surg. Vol. XXIII, No. 1. Jan. 1934) presents a clinical analysis of 100 cases of acute appendicitis in patients over forty, from the records of Charity Hospital in New Orleans and summarises his findings as follows :

1. The mortality in acute appendicitis is still 10 per cent. and more, and a large part of the death rate is made up of the fatalities which occur in individuals over forty years of age.

2. The appendicecal disease of middle and late life differs radically from the same disease as it is apparent in younger subjects. The pathology, which is vascular in origin, is actually and potentially more serious, and the early clinical course, which is a typical, frequently does not bear witness to its gravity. For that reason diagnosis is made late and operation is deferred.

3. Operation is always serious and difficult because of the extent and virulence of the disease, and drainage and enterostomy are necessary in a large proportion of cases.

4. Convalescence is likely to be stormy, even in those patients who recover, and there is a high percentage of fatalities, in many of which the vascular factor is clearly evident.

5. Since the safety of the patient, in view of the rapid extension of the disease and its very serious character, is dependent upon the promptness with which operation is performed surgery is justified on the basis of reasonable suspicion.

J, C. B.

OBSTETRICS & GYNAECOLOGY.

Citelli-Piazza Reaction for Cancer Diagnosis.

M. Montanary Reggiani. (L'importanza della reazione Citelli-Piazza nella diagnosi dei tumori maligni Arch. di pat. e clin. med. 12 : 241-248, 1932, Ref. Am. Jour. Cancer).

Citelli and Piazza gave some of their cancer patients intravenous injections of fresh emulsions of human cancer, as a therapeutic experiment, and found that there resulted a kind of anaphylactic shock with temporary fall in blood pressure and marked leukopenia. This was not shown by all the cancer patients and was found in a minority of non-cancer patients. Various other writers, chiefly Italian, have reported the results of repetitions of this reaction (see abstracts in Am. J. Cancer 16 : abst. p. 313, 1932 ; 18, 420, 656, 1933).

The author has applied this test to 50 patients with cancer and 50 with other diseases. A positive reaction (leukopenia) was given by all except four of the cancer group, and a negative reaction (leukocyte count unchanged or increased) in all except three of the non-cancer group. Two of the tumors were benign ; one gave a positive and the other a negative reaction. The blood pressure part of the reaction has been given up for diagnostic purposes ; the figures tabulated for the first 30 cancer patients are not even mentioned by the author, the results being extremely variable.

(The author claims that the leukopenia observed on a blood made twenty to thirty minutes after injection of a cancer extract aids in the diagnosis of cancer, but in all the positive cases the cancer had been already diagnosed at operation. Apparently none of those who have written about this leukopenia test have made investigations to determine whether leukopenia produced in other ways occurs mainly in cancer patients. In any event, the total number (about 400) of patients who have been examined by this method since its introduction is much too small to allow of definite conclusions. The author makes no reference to a precisely similar diagnostic test applied many years ago by another Italian writer (d'Amato) for infectious diseases in which it gave consistently positive results).

G. M.

OPHTHALMOLOGY.

Corneal Sensation and Reflex in health and disease.

B. Roberti (Ann. di Ottal, Nov., 1932, Ref : Brit. Jour. Ophthal. 45, Jan., 1943) gives a short account of the innervation of the cornea showing how the ciliary nerves form various plexuses from which very numerous filaments are sent off, so that division of one branch has no effect in producing localised anaesthesia. Three forms of sensation may be recognised in the cornea, the sensation of touch, of heat and cold, and of pain. Pain is so allied to the others in the case of the cornea that some have denied any other form of sensation. Diminution of sensitiveness is always accompanied by loss of reflex, both motor and lacrymatory.

It is uncertain whether corneal sensation is lessened with age. The sensation and the reflexes are disturbed in various forms of nervous disease ; local disease of the trigeminal is usually associated with anaesthesia of the cornea and loss of the reflex ; in trigeminal neuralgia the sensitivity is often increased. In disease of the central nervous system the relation between sensitivity and the reflex is often disturbed. The reflex may be lost though sensation is preserved. When the corneal sensation on one side is lowered, a general anaesthesia of the whole of that half of the body is often found. This serves to distinguish a central anaesthesia from one due to lesion of the trigeminal.

In certain local disorders the sensitivity is changed ; thus in glaucoma, it is constantly reduced. It is clear that this loss has some relation to the increase of intra-ocular pressure, but the mechanism is by no means certain.

J. C. B.

Unilateral exophthalmos in intracranial tumours, with special reference to its occurrence in the meningiomata.

Elsberg, Hare and Dyke (Surg. Gyn. & Obst. Dec. 1932, Ref. Brit. Jour. Ophthal., 48, Jan. 1934) begin their paper with a survey of the literature bearing on this condition which shows that all authors are agreed that increase of intracranial pressure may produce an exophthalmos which

may be unilateral or bilateral. In cases where there is direct invasion of the orbit by the tumour, the cause of the proptosis is obvious. The condition can occur, however, apart from orbital wall involvement and in such cases it has been customary to explain it as being due to pressure on the cavernous sinus bringing about venous congestion of the orbital contents, or to paralysis of the recti muscles allowing the globe to come forward. Neither of the explanations is accepted by the authors of this paper,one of the main arguments being the absence of congestion in the retinal veins in cases which did not show papilloedema. The true explanation is probably direct transmission of pressure from the middle cranial fossa, through the superior orbital fissure. In a series of 807 intracranial tumours, unilateral proptosis was found to occur in 15 cases and this was often—for a number of years—the only symptom. The growth which most commonly produced the condition was a meningeal fibro-blastoma which invaded the orbit.

J. C. B.

Corneal Ulcer.

R. A. DUNCAN (The Eye, Ear Nose and Throat Monthly, Jan. 1934) summarises his method of treatment of corneal ulcer as follows :

1. Find the type of infection.

2. Cleanse the ulcer by the use of trichloracetic acid, carbolic acid and alcohol, curette or a small electric cautery.

3. Atropine if no tension, myotics if there is. If the tension is not controlled by these good results may be obtained with the use of adrenalin-bitartrate (Metz Co.), a two per cent. solution in ampoules, being instilled in the eyes. A home-made solution said to be equally effective can be made as follows 1 gr. adrenalin powder, 2 drops dil. HCl and 50 minims of distilled water. It should be prepared often as it is not very stable. The control of tension is very important.

4. Hot compresses, pasteurized.

5. Staining the eye with flourescine each day to see the progress.

6. In herpetic ulcer : X-ray and quartz light.

7. In ulcer serpens when the tension is high and rupture threatens, a delimiting Keratotomy or Saemisch operation.

8. Removal of focal infection. Foreign protein injections, calcium gluconate intramuscularly and general body radiation by the alpine light.

J. C. B.

RADIOLOGY & ELECTROTHERAPEUTICS.

Coutard's Method of Roentgen Therapy of Malignant Tumours.

A. HINTZE (Ztschr. f. ærztl. Fortbild. 30 : 108-110, 1933. Ref. Am. Jour. Cancer, points out that Coutard's method of protracted fractionated dosage of high-voltage X-rays is essentially a modification of Pfahler's saturation method, that of repeated irradiation following a first tolerance dosage. Both methods are based on the well established observation that cells with nuclei undergoing mitosis are more vulnerable than at other times, and on Regaud's finding that squamous cell skin cancers are particularly amenable to highly penetrating and strongly filtered x-rays. Coutard obtained his best results with malignant epithelial tumors of the oropharynx (tonsils, fauces), nasopharynx and larynx. Of 77 patients with laryngeal cancer treated during the years 1921 to 1926, 22 were free from recurrence in 1930 that is, at least four years after treatment. Coutard has pointed out that the method is not likely to give equally good results in carcinoma of all sites.

The author believes that Coutard's method has not yet been sufficiently tried to determine whether it has marked advantages over other and simpler methods. He points out that the method is an expensive one, both as regards cost of apparatus and the amount of time required for its use. With an apparatus which has to be used for so long a period every day, and with which a radiotherapeutist can treat only from four to six patients over a period of three weeks. it is obvious that the method can be extensively used only in large and financially well endowed institutes.

G. M.

Place of Radium in Radiation Therapy.

H. WINTZ (Fortschr. d. Therap. 8 : 460-464, 1932, Ref. Am. Jour. Cancer—gives a short general survey of the relation between the well known physical characteristics of radium and x-rays and radiotherapy of cancer. The relative advantages and disadvantages of radium *versus* x-rays therapy are discussed. The small quantities of radium available entail the use of short target skin distances with consequent rapid diminution in depth intensity in the successive subcutaneous layers, The longer target skin distances used in the more easily accessible x-ray therapy are accompanied, on the otherhand, by higher depth intensities. Radium, therefore, is used chiefly for its local effect, as, for instance, in intracavity, interstitial, or contact application ; x-ray, on the other hand, is used for reaching deeper or more extensive areas by transcutaneous irradiation. As these two actions complement each other, the author frequently combines radium and x-rays, as in cancer of the cervix. He emphasizes the fact that the knowledge of clinical and physical factors concerned in radiotherapy is more important than the possession of large quantities of radium.

G. M.

PATHOLOGY & BACTERIOLOGY.

The Immunology ef Staphylococcus Toxin.

W. A. JAMIESON & H. M. POWELL (Amer. Jour. Hyg., Vol. XIX, No. 1 Jan. 1934) draw the following conclusions from their experimental observation : —

1. Highly potent staphylococcus necrotizing toxin in suitable dilutions appears to be of value as an active immunizing agent in certain chronic staphylococcus infections in man, some of which are refractory to other specific treatment.

2. Horse staphylococcus antitoxin appears to be of little value in pyogenic staphylococcus infections, but possibly of some slight value in obscure staphylococcus infections with pronounced toxemia-like conditions.

J. C. B.

Lesions in Amoebic and Balantidal Infections.

H. L. RATCLIFFE (Amer. Jour. Hyg., Vol. XIX, No. 1 Jan. 1934) as a result of his study of the pathological changes in the intestinal wall of man and lower animals infected with endamoeba and balantidium summarises his observations as follows :—

1. Pathogenic species of endamoeba and balantidium have identical effects upon the mucosa of the large intestine of susceptible hosts. The primary and perhaps the total effect of the organisms is merely necrosis. They enter the tissue only after necrosis has taken place, except as a postmortem or late antemortem change.

2. The protozoa apparently elaborate a cytotoxic or necrotizing substance that causes tissue degeneration. Lesions are invaded by intestinal bacteria also. Hence extension of tissue necrosis may be due to a combination of factors, and the inflammatory response may not be attributed to the parasites alone.

3. Resistance of the host must be impaired before the intestinal tissues are subject to necrosis.

4. In either balantidiasis or amoebiasis lesions of the intestinal wall originate in the mucous surface. Surface and deep ulcers are genetically the same, except when the latter result from bacterial abscesses of the follicles. The lymphoid tissues of the gut wall, because of their anatomic position and make up, are important foci for extension of the disease to the submucosa.

5. Postmortem penetration of tissue by balantidium and endamoeba accounts for the fact that isolated organisms and groups of organisms are found deep in the intestinal wall. Balantidia also can invade cut edges of the large intestine at autopsy.

J. C. B.

PEDIATRICS

Infantile Sepsis and its Nutritional Effects

A. G. OGILVIE (Archives of Diseases of Childhood, Vol. 8, p. 413, 1933) reported thirty-one cases of septic infection in infants. Infantile sepsis is an important cause of ill-health and deaths among babies, and is a potent source of institutional infection.

Like any other disease, the prognosis varies with the resistance of the patient and the size and virulence of the infective dose, but it may be said that subacute cases do much better than acute cases ; and that the longer a child survives, the greater its chance of ultimate recovery. The general mortality appears to be about 30 per cent. The portal of entry is perhaps most frequently the respiratory tract, although definite conclusions have not been attempted.

The impression gained is that of some basal septic focus, which produces general tonic symptoms and periodic embolic lessions until such time as the patient acquires sufficient resistance to kill the infection, or until death occurs.

Finally, emphasis has been laid throughout on the pronounced effect of this affection on the digestive processes and the general nutrition and on the difficulty in diagnosis to which this may give rise. It has long been recognised that severe digestive and nutrititional effects are produced by septic infection in infants, but there has been insufficient recognition in the literature of the insidious character often assumed by the disease, and of the ease with which the cause may be overlooked, in spite of the work of Marriott and his collegues. Clinically, this is much the most important feature.

Author's Summary

The normal birth-weight and birth-length of Bengali Infants.

G. C. NANDI (Indian Journal of Pediatrics, Vol. I, p. 24, 1933) examined the record of 4975 consecutive labour cases but considered only 1058 primigravidæ for the purpose of investigation. The cases have been divided into paying and non-paying groups. The average birth-weight is found to be 5.74 lbs. and the birth-length 19.3 inches, the maximum and minimum of the series being 8.75 and 3.50 lbs. and 24 and 16 inches respectively. A definite relationship has been found between the birth-weight and birth-length and the social and economic condition of mothers. Those of the paying groups being as a rule heavier and longer than those of the non-paying ones.

K. C.

Milk-free Diet in Puyria and Eczema of Children.

A. MADER (Indian Journal of Pediatrics, Vol. I. p. 99, 1934) used a preparation of soya bean in the treatment of the above conditions. Soya bean is the only vegetable product which contains the biolgically important amino-acids tryptophan, lysin, arginion and cystin and therefore physiologically adequate.

The strongly acid urine of coli infection turned alkaline in a few hours on a soya bean diet and remained so. This does away with the treatment with urotropine, salol etc. More important application,however, is in the treatment of eczema. The dietary treatment with soya bean which makes it possible to eliminate milk and its curative action is immediate. This is because of the high mineral content and change of metabolism towards alkaline side. Naturally the causal treatment with food does not eliminate the administrations of local application. For this purpose philonin ointment has been used with success.

K. C.

Vesical Calculus in Children.

M. PELLIN (La Pediatrica Vol. 42 p. 1, 1934) reported two cases of vesical calculus. In the first one, a child four years old, clinical diagnosis was confirmed by x-ray examination. In the second, a baby fifteen months old, clinical symptoms were nearly absent and diagnosis could be made only through x-ray examination. As a result of his investigation, the author came to the conclusion that (1) infantile calcilosis of bladder is more frequent than one might think (2) early diagnosis is difficult through clinical observations only and therefore urine analysis, rectal exploration, Röntgenography, cystoscopy are always necessary. Radiological examination is certainly of the greatest value but its value must not be over-rated as a number of stones may be transparent to x-rays. Even a positive finding must be considered critically because not a few diseaes of the urinary and extra-urinary organs may simulate a stone.

Treatment of Alimentary Toxæmia.

O. SAXL (Acta Pediatrica Vol. 16 p. 542, 1933) used concentrated whey and carbohydrate gruel in the treatment of alimentary intoxication. This has the following advantages. The rapid retention of water in the body and the possibility of prolonging the life in those cases which do not show any improvement during the early days and are toxic and the disadvantage that it may in some cases tend to a dangerous drop of body weight.

K. C.

Association Notes

Presidential Address
OF
The Golden Jubilee
OF
The Bombay Medical Union

JEHANGIR J. CURSETJI, M.D.

LADIES, GENTLEMEN & FRIENDS,

It is scarcely necessary for me to say how very pleased I am to welcome you one and all, on behalf of the members of our Union, to this festive gathering this evening, on the unique occasion of the glorious Golden Jubilee of the Bombay Medical Union. I have ventured to call this occasion "glorious", because during the Union's existence now of full half a century, it has had the good fortune to lay the first foundation stones of the gradual but steady rise and progress of the Independent Medical Profession in India, by bringing together its somewhat conflicting interests and aspirations into a common fold. It has in fact drawn these units, loosely scattered in the different provinces of the Empire of India, into a homogeneous whole, and firmly cemented the bonds of good fellowship and mutual professional interests within the circle of an united medical fraternity. It has also broadened our limited outlook and vivified our dormant activities for the advancement of our legitimate aspirations in the field of practical medical politics with the gratifying result, if I may venture to say so without meaning any invidious distinction or unfriendly reflection, that the Bombay Medical Union has come to be recognised, both by the Government and the general public, as "the accredited mouthpiece of the medical profession in India." It was Lord Reay, perhaps the most sympathetic and liberal-minded Governor of Bombay, who first publicly said so, and recognised it as such in a speech delivered in 1888, during the official discussion of the then newly revised scheme by Government, of honorary appointments of Indian medical men in our colleges and hospitals. And if I repeat it to-day, it is not in a spirit of mere vain glory, but in the subdued spirit of grateful acknowledgement of the loyal and unselfish support and co-operation of those who have willingly contributed to make our Union so successful. What is still more gratifying is the fact that the useful work that it has done during all these years has indirectly led to the formation of several other medical Associations and Unions, modelled on lines more or less similar to our own, in some of the larger cities and even smaller towns in India. And I am glad to say that all these younger offsprings have been working loyally and hand in hand with the parent body, on almost all the more important medical questions that have affected the best interests of our profession.

I may here recall to your mind that it was about 25 years after the foundation of the Union i. e. in the month of February 1909, that the first Bombay Medical Congress of an international character was organised and opened by the then Governor of Bombay, Lord Sydenham. Many of our members actively co-operated at the time to make it a success, by contributing some interesting papers and taking a prominent part in the public discussions that followed in our Convocation Hall. The Union had also further helped it by organising a brilliant *soiree* in their own commodious rooms in the Readymoney Buildings at Apollo Bunder, and invited to it over a thousand guests including all the foreign medical visitors and many distinguished guests from the fashionable society of our city. It is a matter for regret that, notwithstanding that nearly 25 years have elapsed since then, no effort has been made to organise a second one in our city on similar lines.

With these introductory remarks, Ladies and Gentlemen, I think it is desirable that at this stage, and before speaking about *the work done by the Union*, I should first say something regarding (a) the *birth* of the Union, (b) the *objects* for which it was started, and (c) *some of the travails and vicissitudes* through which it has had to pass during its infancy and boyhood to reach its present manhood, for the information of those of the younger generation who are present here this evening. I believe I am not wrong in thinking, and I trust I will be pardoned for saying it, that during this transitional period a good many among you must not have been even born, or may have only just begun to learn how to suck the little feeding

bottle, lying in your cradle, or eat your egg out of the nurse's spoon, sitting up in the Baby Chair.

Coming first to the *conception* and *birth of the Union baby*, it may be interesting to note that it was purely due to an accidental circumstance which occured in the year 1883, during the course of an ordinary conversation one evening between three young medical men, the late Doctors B. S. Shroff, D. B. Master and myself, who, although only recently passed out of the Convocation Hall, had the hallmark of the degree of Licentiate of Medicine and Surgery attached after their names. Perhaps many of you may not know that there were only two medical societies in existence in our city at the time, viz: (1) the Grant College Medical Society, and (2) the Bombay Medical & Physical Society. The former included on its roll both Indian and European members, and the latter, as far as I am aware,was exclusively confined to the members of the Army Medical Service. Both of them, however, were purely *literary societies*. But the latter further enlivened its meetings with an occasional "old auntie's afternoon tea", consisting of thinly buttered sandwiches, some assorted biscuits and cakes, chocolates being not much known then, and a steaming tea-kettle to warm up the rather dull proceedings. There was no other medical body or society in existence then, to initiate and establish a friendly *social intercourse* between the members of the profession, or to consider and promote its best interests. Hence, the conversation of the three young men accidentally but naturally turned on the desirability of starting such a body in our midst. And it was at the suggestion of the late Dr. Shroff, that the three young men then resolved to take steps to organise such a movement, and I was asked to draw up its prospectus.

From an old copy of this prospectus that I have with me, it will be seen that, "besides the usual purely literary aspects of all medical societies, the objects in view were at first to be limited in their scope, the main intention being to form a *social club* to establish and promote friendly intercourse amongst medical men, both young and old, which might in time attain, if properly supported and judiciously managed, a certain *locus standi*, from which it would have an authoritative voice, both with the general public and the Government, on matters medical and related directly or indirectly to our professional interests." How far and how well this prophetic anticipation has been fulfilled and justified, can be impartially judged by the present generation alone. An important feature of this movement was the holding of a regular monthly dinner at the rooms of the Union, in which *all members had to join*. It will be readily admitted that we cannot afford to dispense with it entirely, because it is the one feature that has largely contributed to the continuance of the spirit of *bon-homie* and professional *comaraderie* that has been kept in our midst, notwithstanding the petty differences of opinion that will at times arise in this as in all other well conducted bodies. And it is for that very reason that I here beg to make an earnest appeal to all our members, that this very essential feature should *not* be neglected but compulsorily revived, if not every month, at least once a year, at our annual dinner, where we could have an opportunity to invite also the newly qualified young graduates of that year as our guests, and introduce them to the cordial welcome of our members, as in the days of old.

Reverting to the prospectus, it further said that, "to attain this much-to-be-desired end, all medical men both senior and junior," and I will crave leave to add, both of the rougher and the gentleer sex, "should give their heartiest support and co-operation to the present movement, which it is earnestly hoped they will not fail to do. And I have not the slightest doubt that even before the month is out, our Managing Committee will, in response to this appeal, receive many applications from amongst you, not only for membership, but for willing work, sacrifice and service."

Out of the 12 members who signed the prospectus, I am sorry to say that only Dr. Sir Temulji B. Nariman and myself are still in the land of the living. And it is because of this accidental circumstance that I happen to be the oldest member of the Union now living,—Sir Temulji having discontinued his connection with it some years ago,—that I have been honoured with the invitation to preside at this function and to extend the hand of cordial welcome to you all, on this memorable occasion.

From the report of the preliminary general meeting held to inaugurate the movement, it will be seen that it met at the Great Western Hotel, then located in the old High Court buildings in

Apollo Street, on the evening of the 22nd December 1883, full fifty years ago, and that certain resolutions were then proposed by some prominent members of the profession at the time and passed unanimously, to establish the body now known as the Bombay Medical Union. This meeting was followed by a sumptuous dinner at which a large number of medical men were present, and when toasts were cordially proposed and drunk, wishing the Union "all success and prosperity in the years to come." How truly that lucky wish has been fulfilled, and how well the trusty old barque has succeeded in safely emerging through weal and through woe, after weathering the many disheartening ups and downs, and at times badly bruised and battered almost to the sinking point, and how remarkably well it has prospered in spite of all, it is for you, Ladies and Gentlemen who are present here this evening, to judge. And it was indeed a very fortunate circumstance, that notwithstanding the fact, that during the decade between 1897 and 1907, the membership of the Union had fallen as low as twenty, *including* the secretaries, treasurers and members of the Managing Committee all told, yet, instead of allowing the dear old barque to sink, about half a dozen of them very generously determined to bear all the heavy annual deficits by voluntary contributions from year to year, and thus tided it safely through that stagnant period to years of renewed vigour and prosperity to-day.

That prosperity has also been to a certain extent due to the very handsome donation of Rs. Rs. 10,000 contributed to the funds of the Union in the very early stage of its existence, by Sir Dinshaw M. Petit, the first Baronet, through the influence of the late Dr. A. P. Cama,—a past President of the Union, and one of its most active members until the time of his death,—for the foundation of the Hon'ble Sir D. M. Petit Medical Union Library.

Having thus given you a glimpse into its ancient history, I will now try to present you with a brief *resume* of the work done by the Union, and of its many sided activities during the course of its fifty years' eventful existence. And in doing so, I shall briefly touch only on some of the more important questions which it had under its consideration at various times during that long period.

Besides the contribution of numerous papers, lectures, clinical demonstrations and discussions on topics of scientific interest on its literary side, the Union, has also taken up on its medico-political side various questions of professional and public interests, and made cogent representations on them whenever necessary. As, however they are all printed in appendix A, attached at the end of this address, I do not think it desirable to unnecessarily weary you by recapitulating them here once again.

In addition to these representations and memorials, witnesses from the Union were also deputed to give evidence before these bodies. For instance, the late lamented Dr. K. N. Bahadurji, one of the most distinguished past presidents of the Union, was deputed by the Committee of the Indian Medical Reform Fund to give evidence before the Welby Commission sitting in London in 1896, the late lamented Dr. Sir Bhalchandra Krishna, also one of our very distinguished past presidents, before the Indian Universities Commission in 1902, Dr. M. D. D. Gilder, another distinguished past president, and our able, ubiquitous and indefatiguable friend Dr. Sir Nasarvanji Choksy, before the Lee Commission in 1918-1920, and again Dr. Sir Nasarvanji Choksy, before the Verney-Lovett Committee of the Government of India, appointed in 1919, and lastly, the late Dr. Sir Bhalchandra Krishna and myself, then President of the Union, were deputed to give evidence before Lord Islington's Royal Commission of Inquiry on the Public Services in India, in 1913-1914.

From amongst all these representations and memorials, the more important ones may be classified into three groups of outstanding interest for our profession, viz : A : a group consisting of the various Bombay Medical Council Bills from 1911-12, the Medical Degrees Bill of 1916, and the Indian Medical Council Bills from 1927-1933. B : another group comprising Bills for the registration of Medical Practitioners in India : and C : a group embracing the various memorials and representations to the several official Commissions and Committees of Inquiry on the question of financial expenditure and administration of the different public services in India.

Taking the last group first, perhaps the one Commission that created a great deal of stir and

attracted unusual attention and interest of the general public and the medical profession at the time, was Lord Isligton's Royal Commission of Inquiry on the Public Services in India of 1913-14. On that occasion, as already stated, the Union submitted what may be rightly considered its most notable representation on the subject of the necessity of a thorough re-organisation of the *military Indian Medical Service*. In it the Union urged that the time had arrived long since, to split up that old and time-worn service into two distinct branches, one purely Military and the other purely Civil, recruitment in both being made, as in the Indian Civil Service by competitive examinations held simultaneously in the United Kingdom and in India, and open to all comers, both British and Indian, on the fair principle of *la carrie're ouverte aux talents*, without any invidious distinction of caste or creed. As stated above, two witnesses from the Union were deputed to give evidence before it, to maintain and justify all the facts and figures submitted in its memorial. And as anticipated, one of them, myself, was subjected for over an hour and a half, to a stiff and searching cross examination. In the course of it, that phantom bogey of the "absolute necessity of a very large war reserve" was once again put forward before him, and he was asked if it was not very necessary to bear that "necessity" always in mind. He, however, firmly and unreservedly denied the "necessity", and said that "the present war reserve in any case was much too large. Even the Government of India themselves admitted, that one-third of it could be safely left on the Civil side in the event of a war, and it could be eked out by calling for Indian Volunteers who would be willing to offer their services. And if in time of war, such a call was made, *we as a loyal profession were bound to come forward to volunteer our services.*" It was also submitted, that "the present large number of appointments, kept reserved under the guise of a "war reserve", should be very largely reduced, reserving not more than about 87 such appointments for that purpose." He further said, "It was quite inconceivable that the *whole* of this military reserve of over 470 I. M. S. Officers would ever be called out even if a *big* European War broke out." He also emphatically asserted, that "even if it did, a large number of volunteers from the members of the independent medical profession in India could be found without much difficulty to fill up the ranks, almost the entire body of the war reserves called up, and that the work of the Civil side of the Indian Medical Service would not in any way be materially disturbed or unhinged." Ladies and Gentlemen, I may say here that I am quoting all these passages from the *official* records of the Commission itself.

As soon as the war broke out in August 1914, I, as I have said above, happened to be then President of the Union, and as such, I at once circularised the medical profession of this Presidency to volunteer their services, and carried on a large correspondence with all the medical associations of sister provinces, to consider the steps necessary to organise and harmonise them properly. About 130 of our *local* medical men responded, very cheerfully and at a very short notice, to this clarion call of loyalty and duty above everything towards our king and our country. Many more offers from our presidency followed within another fortnight, and a long list of such volunteers was respectfully submitted by the Union to the authorities, with the result that about 150 of our local medical men were selected and enrolled in the Indian Medical Service, with the temporary commissions of Lieutenants. Similarly the Indian medical profession in some of the other provinces of India also tendered their services in large numbers as cheerfully and readily as our own men.

Another contingent of about 60 Indian medical men, residing at the time in the United Kingdom, volunteered their services direct to the British Government, and they also were all gladly accepted. Thus, over eleven hundred Indian medical volunteers were enrolled from all parts of India and actively served in the war in all the fields of operations, upto the time of the Armistice in November 1918, and even thereafter. As a matter of fact, the Indian Volunteers were three or four times as many as all the "War reserves" put together, and had it not been for them the military medical department would have broken down.

The final report of Lord Islington's Commission was published, as you know, rather tardily and inopportunely in August 1915, exactly two years after the declaration of war. It would have been but natural to have expected, that the fact that such a large number of our Indian medical men, sacrificing their practice and future prospects and the means of livelihood for themselves

and their families, had come forward at a very critical period in British history, to so readily and patriotically undergo all the hardships and dangers of active military service in any part of the world where their services were needed, ought to have weighed at least a little with those who signed the majority report of that Commission. Instead, however, of giving any heed to their just claims and aspirations, they, on the contrary, I am sorry to say, made some very retrograde and even reactionary recommendations, and thus made matters even worse than they were before the war. To speak frankly and with due deference to the Commission, we asked for bread and they have been good enough to give us a stone instead! And as usual, the "necessity" of a big war reserve was, unfortunately for us, once again trotted out and made a convenient brush to wipe out all the principles of justice and fair-play. The report is a sad commentary on the fruitless labours of the various Royal Commissions and on the helpless struggles of the Indian medical profession as well, to expect even some small concessions as long as that mirage of the "war reserve" looms large before them in the horizon.

But, Ladies and Gentlemen, such anomalies and nachronisms may continue for *sometime*, but they cannot be perpetuated for *all time*. "The old order changeth yielding place to new." And even the heaven-born Indian Civil Service, and the high browed Indian Medical Service have had to bow to the compelling pressure of the onward march of progress. And as a result, since the Commission's report was published, a fairly large number out of these civil appointments have been grudgingly thrown open to the Indian medical profession during the last twenty years. For this change in their mentality, our best thanks are due in the first instance, to the late Sir Pardy Lukis, the highly sympathetic and fair minded Director-General of the Indian Medical Service, who so justly initiated it during his term of office in 1913-1916. But as you know, man proposes but God disposes. For just as we were feeling very thankful to Government for this new and welcome change in the angle of vision of its medical department, an unexpected bomb has been again thrown in our midst quite recently, in the shape of a memorandum submitted to the Joint Select Committee by that grandmotherly institution, the British Medical Association, always on the *qui vive* to watch through green-tinted spectacles, and *guard, unasked*, the interests of the entire medical profession of the British Empire, but above all of its special *protege*, the Indian Medical Service and its British officers only. To this onesided and somewhat garbled memorandum, a very vigorous reply has already been despatched last month by the Bombay Medical Union to the President of the Joint Select Committee, refuting and exposing many of the misleading statements made therein. (The Association's memorandum and the reply are appended as appendix B and C). One wonders whether the Association, its Council or Committees have had any share in inspiring the General Medical Council in its unjustifiable attitude and interference in Indian University medical education? The passing of the Indian Medical Council Bill in September 1933 has, however, at last laid to rest its attempts at such meddlesome domination. It is greatly to be regretted that the Association, in spite of some thousands of Indian members on its roll, has not supported any of our just claims, all its efforts having been almost entirely directed to the betterment of the pay and prospects of the British Section of the I. M. S. only.

I shall now proceed to consider the next group of our representations on the various bills on the Indian Medical Councils, and the acts for the registration of medical practitioners in India. The subject has always been a very vexed and thorny one for our profession, and has never been satisfactorily handled by Government in the past. If I remember aright, three Medical Registration Bills were introduced in our Presidency during the last 50 years or so, viz; the one proposed by the late lamented, highly sympathetic and fair-minded principal of the Grant Medical College, Dr. Henry Cook, in 1880; the one drafted by the Union and submitted for Government's consideration in 1887; and the last one in 1912, known as the Bombay Medical Registration Act VI, 1912. The first two bills, although strongly supported by the Government of Bombay, failed to receive the sanction of the Government of India, and were, therefore, shelved to the limbo of official pigeonholes, mainly on the ground that the time had not yet arrived for enacting and enforcing such an Act, owing to the peculiar and varying conditions of practice and treatment by Indian Vaids and Hakims, prevailing in the different provinces of

India. But strange to say, notwithstanding these objections, the Medical Act of 1912 for the Bombay Presidency, was yet carried through and received the final sanction of Government, much against the wishes and in spite of the strong protests of the local medical profession! The reason why the Bombay Medical Union so strongly opposed that bill at the time was, *not* because they did not want a Medical Registration Act, but because of the fact that, while it did not impose any check on unqualified practitioners, it gave no advantage to the qualified practiotioners, and failed to achieve what should have been the main object of a Medical Registration Act, viz, to enable the people to discriminate between the qualified and the unqualified. On the contrary, by inserting the names of both the qualified and the unqualified practioners on one common roll, it placed the former in a very false and invidious position before the public. Such a procedure, again, would have eventually militated against the principles laid down by the General Medicial Council of Great Britain, which admitted on its Register only such duly qualified medical men as had either obtained University degrees, or such medical qualifications as were recognised by it as of a sufficiently high standard of medical education. And hence, it was sure to be objected to by that body in the long run, and would lead to the non-recognition and non-eligibility for admission, on the British Medical Register of even our *University degrees*, and ultimately lead to a clash with that body. As a matter of fact that clash *did* come at last, as we know, during the last decade. In spite of it all, however, that odious bill of 1912 was carried through the Bombay Legislative Council, and came into operation immediately. The Act having thus become a *fait accompli*, instead of continuing a futile opposition, the Union resolved to help to work it with the least possible friction, and, as a result and also as a token of this friendly spirit, at the very first election of this enwly created Bombay Medical Council, the four representatives elected by the medical graduates were all members of the Union, and out of them, three were past Presidents viz: the late sir Bhalchandra Krishna, Drs. K. M. Dubash and S. K. Nariman, and the fourth, Sir Nasarvanji Choksy, a valued member on its Managing Committee.

Soon after the compulsory passage of this Act the Government of Bombay realised the necessity of creating a body, with powers to grant a medical qualification or diploma after a comparatively shorter course of medical study, by which poor students might be enabled to practice in the smaller towns and villages in the mofussil,and thus supply their medical needs. And as a result, the Bombay College of Physicians and Surgeons came into existence in the year 1913. On the rolls of this body several members of the Union have also been elected as Presidents, Vice-Presidents and members of Council, as well as Honorary Fellows. The Act of 1912 has now been in force in our Presidency for the last 22 years, and will continue to function until such time as it is happily replaced by a more welcome one. Luckily, such a prospect is now within sight by the recent passage in the Legislative Assembly of the "Bill for creating a Medical Council for India." Besides giving due recognition to the Medical degrees of the Indian Universities, it will also serve to remove the mandatory intereference and the baneful influence which the General Medical Council of Great Britain has been most unwarrantedly exercising over the Government of India for the last eight or nine years. For this very happy result, our most sincere thanks are due to Sir Fazl-i-Husain, the Hon. Member in charge of the Bill, and to the Select Committee of the Legislative Assembly. Our warm thanks are also again due to our undefaitguable friend Sir Nasarvanji Choksy,for the very able and single-handed fight for our profession within and outside the Council of State, of which he is a member here. I have great pleasure to now tender them publicly here, on your behalf, on this festive occasion this evening.

As regards the question of our medical education, it has been practically speaking as old as our Union, if one might say so, and has, as a rule, been looked at askance, just as in other matters from the angle of vision of our friends, the monopolists. There has always been, unfortunately for our progress, a spoke kindly thrust into our wheel, whenever as opportunity to do so has offered itself. As a sample of such good natured service, I will recall to your mind only one instance, viz: the very stormy and acrimonious controversy that raged in our University Senate and in the local Press as far as back 1887, over the reasonable demand of the local medical profession to change

the misnamed degree of L.M. & S., and substit for it the degree of M.B., B. S., which is ordinarily recognised as a *real degree* by all British and Colonial Universities. On that occasion, a well-known professor of the Grant Medical College, who although had himself the bare qualification of L.M. (i.e. Licentiate of Medicine) only of the Dublin University, had yet been considerde competent enough to occupy almost all the principal professorial chairs of Surgery, Anatomy, Physiology, Chemistry, Botany and what not at the Grant Medical College, one after another vehemently opposed that demand, and was supported by some of the members of his own exclusive service. In the course of his speech he openly asserted, that "the majority of them (meaning the Indian University Graduates) *were not fit to hold degrees* in this University, owing to their want of preliminary wide general culture. He challenged them to point out even two out of nearly 300 Licenciates of medicine, who had done any real scientific work in Medicine and Surgery or in Sanitary Science." Ladies and Gentlemen, here again I am quoting this "challenge" from the authentic newspaper reports published at the time, as a sample of the narrow and selfish caste spirit that then prevailed, and,I am sorry to say, unfortunately still prevails to some extent, amongst the Service men, not to allow their official monopoly of the important appointments to be in any way encroached upon by an outsider, no matter how able he happened to be, or how distinguished his qualifications. At the bottom of this opposition to the change in the mis-named L. M. & S. was, I believe, the dread that it would raise the level of the Indian medical graduates and enhance their status, and thus open the door for their entrance into the sacred precinets of the Indian Medical Service monopoly, so strenuously guarded against all outsiders hither to.

Ladies and Gentlemen, this part of my address would, I am afraid, be considered by many of you as incomplete, if I left that charge that has been often levelled against us unanswered and unrefuted. If we choose, we too might well retaliate by pointing out, that that big mountain of the Indian Medical Service has also been in labour for nearly half a century, but that the net result has been comparatively speaking as poor as it is ridiculous, despite the enormous opportunities they had for original research work. As far as we are aware, in spite of all their arrogant talk, nothing very original has been attempted or achieved on this side of India, except by a dozen or so of talented and earnest men out of so many hundreds in that Service. In reply to that charge, we, too, have the right to ask our self-constituted critics, where and what have been *our opportunities* for original research work during all these years, and where the fields provided for utilising *our* best energies and our best intellects, as are provided for them ? In later years, when such opportunities have been grudgingly given to a few of our men, they have fully justified their selection by the encouraging results of their original work, both in our own city and in the capital cities of Calcutta and Madras. And side by side, medical and surgical work of a very high order has been done by many distinguished Indian medical graduates in the Government hospitals and in their own private hospitals and clinics, such as would challenge favourable comparison with similar work done anywhere else. It was once said by Sir Harcourt Butler, late Governor of the United Provinces, that "we cannot in this land of the ox-cart get the pace of the motor car." But even if we have progressed hitherto "at the *pace of the ox-cart in this land of the ox-cart*", though that is not *now* possible in this age of constant bustle and progress, we will have still achieved in the near future, through the help of the more generous and progressive policy recently adopted, something that will soon pave the way for the *pace of even a motor car*.

I am glad to say, however, that the new spirit of activity and progress in sanitary and agricultural matters into which the Government of India have been aroused of late, has been very gladly welcomed by the agricultural masses, who realise and appreciate its beneficent effects in their rural uplift, and on their lives, their health and their homes also. Ley us hope that in adopting this sympathetic policy, the proper and rightful place of the Indian medical profession will be assigned to it in this useful work of bettering the insanitary conditions of living and surroundings of their own countrymen. It also gives me great pleasure, to take this opportunity to sincerely thank Government for their courteous and considerate attitude towards us as a profession. And as a further evidence of this friendly spirit, I have great pleasure in announcing, what most of you already know, that the Government of His Excellency Sir Frederick Sykes, the late Governor of Bombay,

has been good enough to very kindly accede to the Union's request for a plot of ground on theKennedy Sea Face for erecting a medical gymkhana, and has allotted us a fairly large piece on the same terms and conditions as with the other gymkhanas now located there. This grant will, I am sure, greatly add to our social amenities, and to that important feature of the Union in promoting friendly intercourse between its members, and will serve to give them the rest and recreation which they so badly need after a long day's tiring work.

Thus far we have gone over the work performed by the Union in the half a century of its existence. But a great deal more still remains to be achieved. This can only be done by an unselfish unity of purpose and a closer union and cordiality for the common good of our profession, in which, I am afraid, we are still somewhat lacking. Let me, therefore, repeat once again the earnest appeal that I made in my presidential address : twenty years ago, to those who are still outside the pale of our Union, "to subordinate our differences as much as possible for the common good, to appraise our profession at its true worth, and to carry out its best traditions and ideals as much farther as we can. For, ours is no ignoble profession. The *senses* may be numbed, *but not the sensibility*, the *hand* may be unsparing, *but not the heart*." It will not be considered in any sense a selfpraise, I trust, if we venture to assert, with all due deference to our sister professions, that "ours is a truly noble profession, noble in words, because we honestly think what we say, nobler in thoughts, because we honestly believe what we think, but noblest in action, because we honestly follow the dictates of our conscience. Ours is the priceless luxury of doing the greatest good to the greatest number. And in the gratitude of those whose pains we mitigate and whose sorrows we assuage, there lies a richer and a nobler recompense than the proudest records amidst the tombs of kings." Ladies and Gentlemen, the graphic words of the "Bard of Sweet Auburn" in praise of the *village pastor*, might also be well applied, in appreciation of his services to humanity, to the *ministering physician*, who, like him,

"Beside the bed where parting life was laid,
"And sorrow, guilt and pain by turns dismayed ;
"The reverend champion stood. At his control,
"Despair and anguish fled the struggling soul ;
"Comfort came down the trembling wretch
to raise,
"And his last faltering accents whispered praise."

Before we separate, Ladies and Gentlemen, it gives me pleasure to announce, that an old and intimate friend of the late Dr. B. S. Shroff, the principal founder and the fostering friend of over forty years of the Bombay Medical Union, has sent me four per cent Bombay Port Trust bonds of the face value of about Rs. 2,300, to be handed over on certain easy terms to the Trustees of the Union's funds, as a mark of appreciation of the very valuable services rendered by him to the Union, with the request that a separate account be opened in their books, and out of its annual income a gold medal of the value of rupees one hundred be awarded, at its annual meeting every year, to the author of the best treatise on any selected scientific or medical subject previously announced. The recipient must be a medical graduate of the Bombay University. In addition, I, too, wish to donate a sum of rupees seven hundred for two life size portraits in oil painting, nicely framed, of the value of Rs. 350 each, of the late Dr. B. S. Shroff and the late Dr. Dinsha Bamanji Master, the two original founders of the Bombay Medical Union, in appreciation of the very valuable and whole-hearted services rendered by them to it and to the medical profession, during their life time. The portraits to be hung in the Union Hall with suitable inscirptions.

And now, before I sit down, let me once again thank you all very sincerely for the patient attention and indulgent courtesy you have been good enough to extend to me in listening to my unavoidably lengthy address. Let me also very cordially thank my good old friend on my left, Sir Nasarvanji Choksy, for the great help he has given me, not only in supplying me with some important details, but in reading it also before you tonight.

Medical News and Notes.

[Items of news and notes of general interest to the profession for incorporation in this section from the members of the profession will be greatly appreciated—EDITOR]

Panjab Medical Council.

The REGISTRAR of the Punjab Medical Council requests all registered medical practitioners of the province to notify to him changes in their addresses, so that correct addresses may be published in the Annual Medical List for 1934. (1096-M.C. 24-11-1933).

Research Scholarships in Medicine

The Lady Tata Memorial Trust announce four scholarships of the value of £400 a year each, which will be open for award in June 1934 to men or women of any nationality, for research work in the subject of blood diseases, with special reference to leucaemias. Each will be tenable for a year, from 1st October 1934 and renewable up to a normal maximum tenure of three years. The scholarships will ordinarily be awarded on a whole-time basis, but a candidate holding a part-time teaching post may be allowed to retain this if, in the opinion of the trustees as advised by the Committee, his duties will not prevent him from giving his chief interests and energies to his proposed research work.

Candidates for these scholarships must send their applications in time to be received in London on the 15th April next, addressed to the Secretary, Dr. H. S. Patel, Lady Tata Memorial Trust, Capel House, New Broad Street, London, E. C. 2, or Prof. A. Vacha, Calcinstrasse, 27, Berlin, N. W. 40, or the Lady Tata Memorial Trustees, Bombay House, 24, Bruce Street, Fort, Bombay, from whom forms of application may be obtained, Applications which are delayed by special circumstances, will be accepted up to the 30th April ɟnq in no case later.

Influence of U-V. Rays on Malaria.

At the Moscow Institute of Tuberculosis, very interesting and quite original experiments on the effects of malaria are being made. The scientific director of the Institute, Dr. J. L. Sobelman has succeeded in demonstrating that attacks of malaria have some connection with light-ray energy absorbed from the organisms of a patient. The most active rays of the sun spectra (violet and ultra-violet), richly saturating the atmosphere surrounding us, induce fever. In collaboration with a medical man, P. K. Babinovic, Mr. Sobelman has made a variety of tests. He placed for several days in totally darkened rooms, malarial patients whom obstinate fever had plagued for a long time; the result was that the illness ceased immediately and the temperature went down. That result cleared up "the secret," of the effects of quinine. A solution of quinine absorbs chemical rays, and in these properties of quinine lies its efficacy. Coming into contact with the organism, quinine sets up in it a sort of protective covering against the action of these rays, and thus checking the rays from entering the organism, breaks up the attack. The practical result is that quinine has not a monopoly in the treatment of malaria. It can be substituted by other preparations that possess analogous qualities. Since, it has been discovered that the substance known as "*esculin*," which the bark of the wild chestnut tree contains, as well as sulphate of naphthol, prevent the chemical rays from penetrating the organism, both these preparations give excellent results in the treatment of malaria. Quinine in the treatment of malaria plays the same role as a darkened room. In this way, the connection between radial energy and malaria has been established. But, how do the actinic rays get into the organism? Is not not the clothing covering the body an impenetrable shield against violet and ultra-violet rays? The result of experiments to clear up these difficulties are exceedingly interesting. Sobelman conceived the idea that the rays penetrated into the organism through the eyes! As a test, the malarial patients protected the eyes, with coloured spectacles. The result of the experiments showed that these spectacles had more effect than different remedies, because they (the glasses) stopped attacks of malaria even when the prolonged use of quinine had failed. The rays pass into the

organism through the eyes as through an open window! The coloured lenses close this window and in that way get rid of the malaria fever. Dr. Sobelman's labours are not only of great practical value, but also of great theoretical interest.

(*Medical World*, 19*th Jan.* 1934).

New Leprosy Clinic In Colombo

A new skin clinic, equipped to deal with leprosy cases in the non-infective stage, has been opened in Colombo. The Director of Medical and Sanitary Services, opening the clinic expressed the hope with the new conception of treatment of leprosy embodied in the clinic, the disease might be eradicated from Ceylon within the next two or three decades.

Charge of Perjury

Deterrent sentence on Medical man.

The City Magistrate of Allahabad convicted police head-constable named Chandrik Prasad to six months' rigorous imprisonment and Dr. S. P. Bose, a medical practitioner, to two years' imprisonment and a fine of Rs. 1,000 on a charge of perjury.

The prosecution story was that a man named Sheojanak Pande had assaulted a minor girl but the Sessions Judge acquitted him as he pleaded an *alibi* on the evidence of Chandrika Prasad and Dr. Bose that he was under treatment of the latter at Benares on the date of the occurrence. Against this acquittal the Government appealed to the High Court which said that the *alibi* was perfect but manufactured. After convicting Sheojanak Pande, Mr. Justice Young committed the present two accused on a charge of perjury. They pleaded guilty.

The magistrate discarded the doctor's plea that he was forced by the police to manufacture a false patients' register. In giving a deterrent sentence the magistrate said that *the accused doctor had disgraced the medical profession.*

(*Statesman*—23*rd Feb.* 1934).

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